IRPL-F17

IONOSPHERIC DATA

ISSUED

JANUARY, 1946

PREPARED BY INTERSERVICE RADIO PROPAGATION LABORATORY
National Bureau of Standards
Washington, D.C.

IRPL-F 17 INTERSERVICE RADIO PROPAGATION LABORATORY
NATIONAL BUREAU OF STANDARDS
WASHINGTON, D.C.

Issued
21 Jan. 1946

Organized under Joint U.S. Communications Board

IONOSPHERIC DATA

CONTENTS

Final data

TERMINOLOGY AND SCALING PRACTICES

The symbols and terminology used in this report are those adopted by the International Radio Propagation Conference, and given in detail on pages 24 to 26 of the report IRPL-C61, "Report of International Radio Propagation Conference," and in the Section on "Terminology", in reports IRPL-F1, 2, 3, 4, 5.

Beginning with data reported for September, a new symbol, L, defined as follows, is adopted for use in detailed tabulations of hourly values of ionosphere characteristics observed at Washington;

> L or l = critical frequency, muf, or muf factor for F1 layer omitted because no definite and abrupt change in slope of the h'f curve occurs either for the first reflection or for any of the multiples. (See "Report of International Radio Propagation Conference," IRPL-C61, June 1944, VI 3c, p.37).

In the past, ionospheric conditions were summarized on a monthly basis by using average or mean values, for each hour of the day, for each month. However, following the recommendations of the International Radio Propagation Conference, held in Washington 17 April to 5 May 1944, beginning with data for 1 Jan. 1945, median values were used by IRPL wherever possible. Thus, median values are given for Washington, for all stations reporting directly to the IRPL, for the Canadian stations, and for all others sending in detailed tabulations to the IRPL, from which medians can be computed.

Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data existed.

The monthly median values used here are the values equalled or exceeded on half the days of the month at the given hour. The following conventions are used in determining the medians for hours when no measured values are given, because of equipment limitations and ionospheric irregularities. Symbols used are those given in the report referred to above, IRPL-C61.

a. For all ionospheric characteristics:

Values missing because of A, B, C or F (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:

Values missing because of E are counted as equal to or less than the lower limit of the recorder.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For f^oF2, as equal to or less than f^oF1.
2. For h'F2, as equal to or greater than the median.

Values missing for any other reason are omitted from the median count.

c. For muf factors (M-factors):

Values missing because of G are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because no Es reflections appeared, the equipment functioning normally otherwise, are counted as equal to or less than the lower limit of the recorder.

Values of fEs missing for any other reason, and values of hEs missing for any reason at all, are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by a parenthesis, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, no median value is computed, the data being considered insufficient.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, so long as there are at least five values, the median is not considered as doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

It is expected that this practice will be of assistance in evaluating the monthly median Washington data.

MONTHLY AVERAGE AND MEDIAN VALUES OF IONOSPHERIC DATA

The ionospheric data given here in graphical and tabular form were assembled by the Interservice Radio Propagation Laboratory for analysis and correlation, incidental to IRPL predictions of radio propagation conditions. The following are the sources of the data:

Australian Council for Scientific and Industrial Research,
Radio Research Board, Australia:
- Brisbane, Australia
- Canberra, Australia
- Cape York, Australia

British National Physical Laboratory, and Inter-Services Ionosphere Bureau:
- Slough, England
- Great Baddow, England
- Burghead, Scotland
- Delhi, India
- Capetown, Union of S. Africa
- Colombo, Ceylon

Canadian Radio Wave Propagation Committee:
- Churchill, Canada
- Ottawa, Canada
- St. John's, Newfoundland
- Prince Rupert, Canada
- Clyde, Baffin I.

New Zealand Radio Research Committee:
- Kermadec Is.
- Christchurch (Canterbury University College Observatory)
- Campbell I.
- Pitcairn I.
- Rarotonga I.

Interdepartment Ionosphere Bureau, U.S.S.R. Scientific Experimental Institute of Terrestrial Magnetism, Moscow, U.S.S.R.:
- Bukhta Tikhaya, U.S.S.R.
- Tomsk, U.S.S.R.
- Sverdlovsk, U.S.S.R.
- Moscow, U.S.S.R.
- Leningrad, U.S.S.R.
- Alma Ata, U.S.S.R.

Carnegie Institution of Washington (Department of Terrestrial Magnetism):
Christmas I.
Fairbanks, Alaska (University of Alaska, College, Alaska)
Maui, Hawaii
Trinidad, Brit. West Indies
Huancayo, Peru
Watheroo, W. Australia

United States Army Signal Corps:
Leyte, Philippine Is.

National Bureau of Standards:
Washington, D.C.

Stanford University:
San Francisco, California

Louisiana State University:
Baton Rouge, Louisiana

University of Puerto Rico:
San Juan, P.R.

Harvard University:
Boston, Massachusetts

The tables of "provisional data" give values as reported to the IRPL by telephone or telegraph. Any errors in these values will be corrected in later issues of the F-series reports. In final data tabulations, any omission of values previously given in provisional tabulations is indicated by a dash.

The tables and graphs of "final data" are correct for the values reported to the IRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of these errors are due to:

a. Differences in scaling records where spread echoes are present.

b. Omission of values where f^oF2 is less than or equal to f^oF1, leading to erroneously high values of monthly average or median values.

c. Omission of values where critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series reports, IRPL-F1, 2, 3, 4, and 5. Discrepancies between predicted and observed values are often ascribable to these effects.

IONOSPHERIC DATA FOR EVERY DAY AND HOUR

These data, observed at Washington, D.C., follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given under "Terminology and Scaling Practices" above.

IONOSPHERE DISTURBANCES

Table 62 presents ionosphere character figures for Washington, D.C., during December 1945, as determined by the criteria presented in the report IRPL-R5, "Criteria for Ionospheric Storminess", together with American magnetic K-figures which are usually covariant with them.

Table 63 gives provisional radio propagation quality figures for North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, November 1945, compared with the IRPL daily radio disturbance warnings, and ISIB daily warnings, the IRPL semiweekly radio propagation forecasts for the A-zone, and the half-day American geomagnetic K-figures.

The radio propagation quality figures were prepared from radio traffic data, reported to IRPL, in the manner described in detail in report IRPL-R13, "Ionospheric and Radio Propagation Disturbances, October 1943 through February 1945," issued 24 May 1945.

VARIATION IN F2-LAYER CRITICAL FREQUENCIES WITH SOLAR ACTIVITY

A total survey of the variation in F2-layer critical frequencies may be conveniently presented by (a) the variation with solar activity of the yearly-average f^oF2, for all locations and times of day, (b) the variation of the ratio of seasonal-average to yearly-average f^oF2 with location and time of day, and (c) the variation of the distribution of daily values of f^oF2 about the seasonal-average value, with location, season, and time of day, if it may be assumed that the latter two variations do not change with solar activity.

In the two immediately preceding issues of this report, discussion was presented concerning the geographic and diurnal variations in F2-layer critical frequencies (IRPL-F15, p.9, Fig. 83, et seq.) and seasonal variations in F2-layer critical frequencies (IRPL-F16, p.8, Fig. 47, et seq.). It is the purpose of the present discussion to complete the survey of average f^oF2 variations by presenting their variation with solar activity [(a), above].

The variation of critical frequency with solar activity, for any regular ionospheric layer, is such that an approximately linear relationship seems to exist between the critical frequency, for any given time of day, season, and location, and the smoothed sunspot number for the corresponding time. (Cf. IRPL-R4, "Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies," IRPL-R26, "The Ionosphere as a Measure of Solar Activity."). For most locations and times of day, the slopes of the curves relating critical frequency and sunspot number are steepest for the F2 layer.

The approximate linearity of the above relationship facilitates presentation of F2-layer solar-activity variations of critical frequency in that it is completely described, for most practical purposes, by the diurnal-geographical array of yearly-average f^oF2 values taken at any two convenient values of sunspot number. In the report IRPL-F15, loc. cit., latitude-variation curves were presented of f^oF2 at a sunspot number of zero, obtained by extrapolation of the linear curves described above, for several hours of the day, and their principal features discussed. In similar fashion, Figs. 51 through 56 present latitude variation curves of yearly-average f^oF2 for a sunspot number of 100, in which it may be noted that all of the chief features of variation noted in the corresponding curves for zero sunspot number are maintained (i.e., latitude variations due to solar altitude, longitude variations due to geomagnetic latitude variation with geographic latitude, northern and southern hemisphere differences, and maintenance of higher values in the afternoon than occur during morning hours at equal solar altitudes.

Although the estimation of values of f^oF2 for zero sunspot number always involves extrapolation of the linear trend curves with sunspot number, whereas, in several cases, the values for a sunspot number of 100 may be read off the curves, the accuracy of the estimation for sunspot numbers near sunspot-maximum values, such as 100, are somewhat less than for the value of zero. This chiefly results from the reasons that (a) data from more ionospheric observing stations have been available near the recent period of low solar activity, and (b) greater uniformity in the interpretation of ionospheric records has been attained during recent years. Minute comparison of the latitude variation curves, for corresponding hours, at sunspot numbers of zero and 100, therefore, is of doubtful significance.

Figs. 57 through 62 present the geographical-diurnal array of these values at all locations and local times of day, at sunspot numbers of zero and 100, for the three geographical zones used for the prediction charts issued in the IRPL-D series. The greatly retarded rate of decay of ionization, particularly in equatorial regions, during the afternoon, the depression of critical frequencies, particularly at night, in the auroral zones, the extremely rapid rise in ionization beginning with sunrise at ionospheric heights, and the unusual diurnal characteristics associated with locations near the geomagnetic equator, are readily seen on these charts.

It has been shown (IRPL-R11, "A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics") that the relationship between critical frequency and solar activity, measured in sunspot

numbers, is such that it may be given even more concise and vivid presentation by means of nomograms, such as those of Figs. 63 through 111, where this variation is expressed, for each zone, for every ten degrees of latitude. As previously discussed (IRPL-F11, "Ionospheric Thresholds of Solar Activity," p.8, Fig. 50 et seq.), the form of the central curve of the nomogram, being in most cases a nearly-collapsed loop, indicates fairly close approximation to the simple relationship

$$(f^oF2 - B) = f(t)(S + A)$$

where B is for most locations a small number, frequently zero, f(t) a function representing a diurnal variation, S the relative smoothed sunspot number, and A ordinarily a fairly large number, of the order of magnitude 10^2, representing a threshold of solar activity in terms of (negative) sunspot numbers necessary for the formation of appreciable F2-layer ionization. Near the geomagnetic equator, there is appreciable deviation from this simple relationship. In such cases the central curve of the nomogram approximates a "figure-8" form, where the portions which show nearly straight-line characteristics may each be represented by the above relationships, but with widely varying values of B and A.

Considerable practical use may be made of this set of nomograms, if ionospheric measurements are available for any location at any time for a period of as little as a few weeks, and the corresponding smoothed sunspot number known. The yearly-average value for this sunspot number may be determined by using the appropriate nomogram, by interpolating between values determined from two adjacent nomograms, or, more accurately, by constructing a nomogram for the appropriate location from the charts, Figs. 57 through 62, after the manner described in the report IRPL-R16, "Predicted F2-layer Frequencies Throughout the Solar Cycle, for Summer, Winter, and Equinox Season." If the ratio between the average observed value of f^oF2 at any hour, for the month under consideration, and the yearly-average value of f^oF2 for this hour, for the same smoothed sunspot number, is determined, this ratio is approximately constant throughout the solar cycle. Thus, by estimating a predicted sunspot number for any future time (Cf. IRPL-R25, "The Prediction of Solar Activity as a Basis for Predictions of Radio Propagation Phenomena") a fair prediction may easily be made for that time, if appropriate seasonal data are available, as indicated above. The yearly-average value may be predicted by means of the nomograms, then the predicted yearly-average value for each hour may be multiplied by the ratio of the monthly average to yearly average f^oF2, for the same smoothed sunspot number, obtained as described above. The result will be a reasonably good prediction of f^oF2 for the time under consideration. If data covering several years' observations are available, and the average of such ratios of monthly-average to yearly-average f^oF2 used, much greater accuracy may be attained.

An additional use of such nomograms, in estimating solar activity, is described in the report, IRPL-R26, "The Ionosphere as a Measure of Solar Activity."

ERRATA

1. In the report IRPL-F16, Table 49 and Fig. 44, the time on which the Madras data for August 1945 were reported should have been given as local time instead of 97.5°E meridian time.

2. In the report IRPL-F16, it should have been noted that there were no sudden ionospheric disturbances observed at Washington, D.C., during November 1945.

INDEXES OF IONOSPHERIC DATA SINCE 1943

The following indexes are the first of a projected series to be published in each January issue of these reports. They are designed to make possible a quick survey of any ionospheric data published in these reports or in their predecessors, since August 1943.

Previous to the issuance of these reports, tabulations were presented in the predecessor series, "Ionospheric Data", and are indicated in the index by months.

Where provisional data were published, such data have been indexed. Final data for the same month are nearly always to be found in the same issue of these reports as the graphs, and may be found quickly through the graph index. Where no provisional data were published, index numbers refer to final data.

Previous to the numbered IRPL-F series, ionospheric data graphs were presented in a supplement to the IRPL Handbook, "Radio Propagation Conditions," and are indexed by months as are the early tabulations in "Ionospheric Data."

Attention is called to the fact that errata in the tables and graphs of any issue of the F series were, when found, corrected in the "Errata" section of subsequent issues.

Index of Tabulations of Ionospheric Data for 1944-1945

	1944											1945											
	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Adak, Alaska																					15		
Alma Ata, U.S.S.R.												12				14	14				15		
Baton Rouge, Louisiana			My	Je	Jy	A	1	2	3	4	5	6	7	8	9	10		12	13	14	16	16	
Bombay, India																			16				
Boston, Massachusetts														8	10	10	11	12	13	14	15	16	
Brisbane, Australia						1	2	2	3	4	5	6	7	9	10	11	12	13	14	15	16		
Bukhta Tikhaya, U.S.S.R.			6	6					6	6		11	11	12	12	14	14	15	15				
Burghead, Scotland						1	1		3	4	6	7	8		10	11	12	14	14	15	16		
Campbell I.						1	1	2	3	5	7	7	8	9	10	11	12	13	14	15	16		
Canberra, Australia						1	2	2	3	4	5	6	8	9	10	11	12	13	14	15	16		
Capetown, Union of S.Africa								2	5	4		6	9	8	10	11	14	13	15	15	16		
Cape York, Australia											7	8	8	9	10	11	12	13	14	15	16		
Christchurch, N.Z.						1	1	2	3	4	5	7	7	8	10	11	12	13	14	15	16		
Christmas I.											5	7	8	8	10	10	12	12	14	14	16	16	
Chungking, China																			15	15	16		
Churchill, Canada		My	Je	Jy	A	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Clyde, Baffin I.			Je	Je	Jy	A	1	2	3	4	5	6		8	9	10	11	12	13	15	16		
Colombo, Ceylon															11	11	12	14	14	15	16		
Delhi, India						2	1	3	3	4	6	7	8	10	11	12	13	14	14	16	16		
Fairbanks, Alaska			My	Je	Jy	A	1	2	3	4	5	6	7	8	9	10	11	12	14	14	15	16	
Great Baddow, England						1	2	2	3	5	5	6	7	8	10	11	12	13	14	15	16		
Guam I.																							
Huancayo, Peru			My	Je	Jy	A	1	2	3	4	5	6	7	8	9	11	11	13	13	15	15		
Kermadec Is.						1	1	2	3	4	5	7	7	9	10	11	12	13	14	15	16		
Kochel, Germany																			15				
Kwajalein Atoll												7											
Leningrad, U.S.S.R.												12	12	14	14	14	14	14					
Leyte, Philippine Is.																	12	12	14	15	16		
Madras, India						4	4	4	12	12	12	12	12	12	12				16				
Maui, Hawaii			My	Je	Jy	A	1	2	3	4	5	6	7	8	9	10	11	13	14	14	16	16	
Moscow, U.S.S.R.		6	6	6	6	6	6	6	6			11	11	11	12	14	14	14					
Oslo, Norway																14		15	15	16			
Ottawa, Canada			Je	Jy	Jy	1	1	2	3	4	5			8	9	10	11	12	13	14	15		
Peshawar, India																			16				
Pitcairn I.									5	5	6	7	8	9	10	11	12	13	14	15	16		
Prince Rupert, Canada																	11	12	13	14	15	16	
Rarotonga I.													8	9	10	11	12	13	14	15	16		
Reykjavik, Iceland			My	Je	Jy	1	1	2	3	4	5	6	7	8	9	10	11	12					
St. John's, Newfoundland																10	11	12	13	14	15		
San Francisco, California			Je	Je	Jy	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
San Juan, Puerto Rico		My	Je	Je	A	A	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16		
Slough, England						5	5	5	5	7	7	8	9	10	11	12	13						
Snainton, England							2	2															
Spitzbergen, Norway																							
Sverdlovsk, U.S.S.R.						2	3	6	6	6	7	10	11	11	12	14	14	14	15				
Tomsk, U.S.S.R.						2	3	12	12	12	12	11	11	11	12	14	14			15			
Trinidad, Brit.W.Indies			Je	Je	Jy	A	1	2	3	4	5	7	8	13				15		14	15	16	
Tromso, Norway																							
Victoria Beach, Canada																		12					
Washington, D.C.			My	Je	Jy	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Watheroo, Australia	Je	My	Je	Je	Jy	A	1	2	3	5	6	7	8	9	10	11	12	13	14	15	16		

Index of Graphs of Ionospheric Data for 1943-1945*

	1943					1944												1945											
	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Adak, Alaska																													
Alma Ata, U.S.S.R.																		12				14	14						
Baton Rouge, Louisiana				D	F	Mh	Ap	My	My	Je	A	1	2	2	3	4	5	6	7	8	10	11		13	14	15	16		
Bombay, India																									16				
Boston, Massachusetts																				8	10	11	12	13	14	15	16		
Brisbane, Australia			D	J	Mh	Mh	Ap	My	Je	Jy	2	2	3	3	4	6	7			10	10	11		15	15				
Bukhta Tikhaya, U.S.S.R.							6	6	6	6					6	6		11	11	12	12	14	14	15	15				
Burghead, Scotland			D	D	F	Mh	Ap	My	Je	Jy	A	2	2	3	3	7	7	8	9	10	11	13	13						
Campbell I.									15	15	15	15	15	15	15	15	15	15	8	10	10								
Canberra, Australia				J	F	Mh	Ap	My	Je	Jy	2	2	3	3	4	6	7						15	15	15				
Capetown, Union of S.Africa															5	6		8	9	11	11	13	14	14	15				
Cape York, Australia																	8	8	10	10	11			15	15				
Christchurch, N.Z.			D	J	F	Mh	Ap	My	Je	A	2	1	2	3	4	5	7	7	9	10	10	11	13	14	15	16	16		
Christmas I.																	8	8	8	10	10	11	12	13	15	16			
Chungking, China																										16			
Churchill, Canada				D	J	F	Mh	Ap	My	Je	2	1	2	2	3	5	6	7	8	9	10	11	12	13	14	15	16		
Clyde, Baffin I.									Je	3	3	3	3	9	9	9	9	10	10	13	13	13	13	15	15				
Colombo, Ceylon																						13	13	14					
Delhi, India	D	D	D	D	F	Mh	Ap	My	Je	Jy	A	3	3	5	6	7		16	16	16	16	16	16	14	16				
Fairbanks, Alaska			D	J	J	F	Mh	Ap	My	Je	2	1	2	3	3	5	6	7	8	9	10	11	12	13	15				
Great Baddow, England			D	D	F	Mh	Ap	My	Je	Jy	2	2	2	3	3	6	6	8	8	12	12	12	14	14	15	15	16		
Guam I.																	6	7											
Huancayo, Peru			D	J	F	Mh	Ap	Ap	My	Je	A	1	2	3	3	5	6	7	8	9	10	11	12	13	14	15	16		
Kermadec Is.						Mh	Ap	My	Je	A	5	1	2	3	4	5	7	7	8	10	10	11							
Kochel, Germany																									15				
Kwajalein Atoll																		7											
Leningrad, U.S.S.R.																		12	12	14	14	14	14	15					
Leyte, Philippine Is.																							14	14	15	16			
Madras, India												4	4	4	12	12	12	12	12	12	12				16				
Maui, Hawaii								Ap	My	Je	2	1	2	3	5	5	7	7	8	9	10	11	12	14	15	16	16		
Moscow, U.S.S.R.								6	6	6	6	6	6	6	6			11	11	11	12	14							
Oslo, Norway																						14		15	15	16			
Ottawa, Canada					J	F	Mh	Ap	My	Je	A	1	2	2	3	4	6			8	10	11	12	13	14	15	16		
Peshawar, India																									16				
Pitcairn I.															5	5	7	7	8	10	10	11							
Prince Rupert, Canada																							12	13	14	15	16		
Rarotonga I.																			8	10	10	11							
Reykjavik, Iceland									Je	Je	2	1	3	3	3	7	7	8	8	10	10	13	13	15					
St.John's, Newfoundland																						11	13	13	14	15			
San Francisco, California				J	F	Mh	Ap	My	Je	Jy	A	1	2	2	3	4	5	7	7	8	10	11	12	13	14	15	16		
San Juan, Puerto Rico			D	J	F	Mh	Ap	My	Je	Jy	A	1	2	2	3	5	5	6	7	8	10	11	12	13	14	15	16		
Slough, England												5	5	5	5	7	7	9	9	10	11	12	13						
Snainton, England																													
Spitsbergen, Norway																													
Sverdlovsk, U.S.S.R.												2	3	6	6	6	7	10	11	11	12	14	14	15					
Tomsk, U.S.S.R.												2	3	12	12	12	12	11	11	11	12	14	14						
Trinidad, Brit.W.Indies								My	My	Je	2	1	2	3	4	5	8	8	8	13				15		15	16		
Tromso, Norway																													
Victoria Beach, Canada																								13					
Washington, D.C.				D	J	F	Mh	Ap	My	Je	Jy	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Watheroo, Australia			D	J	F	Mh	Ap	2	2	2	2	1	5	5	7	7	7	9	9	12	12	12	14	14	15	16			

*Where more than one graph has been published, that of the F2 critical frequency has been indexed.

Table 1 (Provisional Data)

Clyde, Baffin I. (70.5°N, 68.6°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.6						3.1
01		2.5						3.1
02		2.3						3.1
03		2.5						3.1
04								3.2
05		2.5						3.2
06		2.4						3.2
07		2.6						3.1
08		3.0						3.2
09		3.5						3.2
10		3.6						3.3
11		4.4						3.2
12		4.4						3.3
13		4.1						3.2
14		4.3						3.2
15		4.2						3.2
16		3.8						3.2
17		3.6						3.1
18		3.2						3.2
19		3.0						3.2
20		2.8						3.2
21		2.7						3.2
22		2.6						3.1
23		2.6						3.2

Time: 75.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 2 (Provisional Data)

Churchill, Canada (58.8°N, 94.2°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01		3.7						3.1
02								
03		3.4						2.9
04								
05		3.7						2.9
06		3.4						2.9
07		3.2						2.7
08		3.3						3.0
09		4.9						3.1
10		6.0						3.3
11		6.5						3.2
12		6.8						3.2
13		8.0						3.2
14		8.1						3.2
15		7.9						3.1
16		6.7						3.1
17		5.4						3.0
18		4.5						2.9
19		3.6						3.0
20		4.0						2.9
21		3.9						3.0
22		3.7						3.0
23		3.2						2.9

Time: 90.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 3 (Provisional Data)

St. John's, Newfoundland (47.7°N, 52.7°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.4						3.2
01		2.3						3.1
02		2.5						3.3
03		2.5						3.3
04		2.5						3.5
05		2.3						3.3
06		2.3						3.4
07		2.2						3.2
08		4.7						3.4
09		6.1						3.6
10		7.4						3.5
11		7.8						3.4
12		8.3						3.4
13		8.1						3.5
14		8.0						3.6
15		8.0						3.4
16		7.2						3.4
17		6.2						3.5
18		5.3						3.5
19		4.5						3.4
20		3.9						3.5
21		3.4						3.4
22		2.6						3.3
23		2.2						3.1

Time: 52.5°W.
Length of time sweep: Manual operation.
Median values.

Table 4 (Provisional Data)

Ottawa, Canada (45.5°N, 75.8°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.4						3.0
01		2.4						2.9
02		2.4						2.9
03		2.6						3.0
04		2.5						3.0
05		2.6						3.1
06		2.3						3.0
07		2.5						3.1
08		4.7						3.3
09		6.5						3.2
10		7.1						3.3
11		8.1						3.2
12		8.7						3.2
13		8.4						3.2
14		8.2						3.2
15		7.9						3.2
16		7.8						3.2
17		6.8						3.1
18		6.0						3.0
19		4.9						3.1
20		4.0						3.2
21		3.4						3.1
22		2.9						3.0
23		2.8						2.9

Time: 75.0°W.
Length of time sweep: 1.93 Mc to 13.5 Mc. Manual operation.
Median values.

Table 5 (Provisional Data)

Boston, Massachusetts (42.4°N, 71.2°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		2.5						2.8
01		2.5						2.8
02		2.6						2.9
03		2.7						2.9
04		2.7						3.0
05		2.6						3.0
06		2.4						3.0
07		3.9						3.1
08		6.1						3.4
09		6.8						3.4
10		7.5						3.3
11		8.0						3.3
12		8.5						3.3
13		8.0						3.3
14		8.3						3.3
15		7.9						3.3
16		7.3						3.2
17		6.5						3.1
18		5.6						3.0
19		4.5						3.0
20		3.9						3.0
21		3.0						3.0
22		2.6						2.9
23		2.5						2.8

Time: 75.0°W.
Length of time sweep: 0.85 Mc to 13.75 Mc in one minute.
Median values.

Table 6 (Provisional Data)

San Francisco, California (37.4°N, 122.2°W) December, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.2						3.0
01		3.1						2.9
02		3.1						2.8
03		3.4						2.9
04		3.3						2.9
05		3.2						2.8
06		3.1						2.9
07		4.1						3.1
08		6.6						3.4
09		7.6						3.3
10		7.7						3.3
11		8.4						3.2
12		8.7						3.2
13		8.7						3.1
14		8.2						3.2
15		7.6						3.2
16		7.5						3.3
17		6.2						3.3
18		4.2						3.2
19		3.5						3.2
20		2.8						3.2
21		2.6						3.0
22		2.6						3.0
23		3.0						2.9

Time: 120.0°W.
Length of time sweep: 0.8 Mc to 12.0 Mc in six minutes. Record centered on hour.

Median values.

Table 7 (Provisional Data)

Baton Rouge, Louisiana (30.5°N, 91.2°W) December, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.5						3.0
01		3.5						3.1
02		3.5						3.1
03		3.5						3.1
04		3.5						3.2
05		3.0						3.1
06		3.1						3.1
07		5.2						3.1
08		7.1						3.3
09		7.4						3.2
10		7.8						3.2
11		8.0						3.2
12		8.4						3.2
13		8.3						3.1
14		8.5						3.1
15		8.3						3.1
16		7.6						3.2
17		6.5						3.2
18		4.7						3.2
19		3.9						3.2
20		3.5						3.2
21		3.1						3.0
22		3.4						3.1
23		3.2						3.1

Time: 90.0°W.
Length of time sweep: 1.9 Mc to 9.8 Mc in three minutes, thirty seconds.

Median values.

Table 8 (Provisional Data)

Maui, Hawaii (20.8°N, 156.5°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	3.5						3.0
01	250	3.5						3.1
02	240	3.3						3.3
03	220	2.8						3.3
04	210	2.6						3.0
05		2.0						3.0
06		2.0						
07	250	4.4						3.1
08	250	7.1				2.5		3.2
09	250	9.0				2.9		3.1
10	280	10.4	230	4.7		3.2		3.1
11	270	11.2	230	4.8		3.3		3.1
12	290	11.4	210	4.9		3.3		2.9
13	300	12.6	220	5.0		3.4		3.0
14	270	12.7	230	4.9		3.3	4.3	3.0
15	260	12.4	220	4.5		3.0	3.8	3.2
16	250	10.6				2.8	4.0	3.2
17	230	8.2					3.8	3.3
18	200	6.0					3.4	3.4
19	210	4.2					3.9	3.3
20	250	3.6					3.4	2.9
21	250	4.4					3.8	3.0
22	240	4.1					3.1	3.1
23	240	3.6						3.0

Time: 150.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 9 (Provisional Data)

Trinidad, Brit. West Indies (10.6°N, 61.2°W) December 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260	4.2					2.8	3.1
01	240	4.1					2.7	3.3
02	230	3.8					2.7	3.2
03	240	3.0					3.0	3.0
04	280	2.9					2.7	2.8
05	270	3.0					2.6	3.0
06	250	3.9					2.6	3.1
07	240	6.4				2.0	2.8	3.3
08	250	7.6	220	4.0		2.7	3.5	3.3
09	270	8.6	220	4.4		3.1	3.7	3.3
10	270	9.2	220	4.1		3.3	4.0	3.3
11	270	9.3	220	4.9		3.5	4.1	3.3
12	280	8.9	220	4.9		3.5	4.1	3.2
13	280	8.6	220	4.9		3.5	4.2	3.2
14	280	8.6	220	4.8		3.4	4.1	3.2
15	280	8.3	220	4.5		3.2	3.8	3.1
16	270	7.8	240	40		3.8	4.0	3.2
17	250	8.0				2.3	4.0	3.3
18	230	7.0					3.7	3.4
19	220	4.9					3.6	3.3
20	240	4.0					3.4	3.0
21	280	4.0					3.1	2.8
22	280	4.1					2.7	3.0
23	260	4.0					4.0	3.1

Time: 60.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 10 (Provisional Data)

Huancayo, Peru (12.0°S, 75.3°W) December, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		7.0						2.8
01		5.6						3.0
02		4.4						3.1
03		3.4						3.2
04		4.0						3.2
05		3.3						3.1
06		6.6						3.1
07		8.6						3.0
08		9.8						2.8
09		10.1						2.6
10		10.0						2.4
11		9.9						2.3
12		9.4						2.4
13		9.6						2.4
14		10.0						2.4
15		10.2						2.4
16		10.3						2.5
17		10.3						2.5
18		10.4						2.5
19		10.0						2.6
20		9.2						2.5
21		8.7						2.4
22		8.0						2.6
23		7.7						2.7

Time: 75.0°W.
Length of time sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
Median values.

Table 11 (Provisional Data)

Clyde, Baffin I (70.5°N, 68.6°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.0						3.2
01		3.0						3.1
02		3.0						3.2
03		3.0						3.1
04		2.9						3.2
05		3.0						3.2
06		3.2						3.2
07		3.4						3.2
08		3.8						3.3
09		4.8						3.2
10		5.7						3.4
11		5.6						3.3
12		5.8						3.3
13		5.8						3.3
14		5.8						3.3
15		5.4						3.3
16		5.0						3.2
17		5.6						3.2
18		4.7						3.2
19		3.8						3.2
20		4.0						3.2
21		3.7						3.2
22		3.2						3.2
23		2.9						3.1

Time: 75.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 12 (Provisional Data)

Burghead, Scotland (57.7°N, 3.5°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.0						
01		3.0						
02		3.0						
03		3.2						
04		3.5						
05		3.1						
06		2.9						
07		3.3						
08		5.0						
09		5.6						
10		7.5						
11		7.9						
12		8.1						
13		7.8						
14		7.8						
15		7.5						
16		6.9						
17		6.5						
18		5.5						
19		4.3						
20		3.4						
21		3.0						
22		3.0						
23		2.9						

Time: 0.0°.
Length of time sweep: 1.0 Mc to 13.0 Mc. Manual operation.
Average values.

Table 13 (Provisional Data)

Great Baddow, England (51.7°N, 0.5°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.1						2.8
01		3.3						2.7
02		3.1						2.8
03		3.0						2.8
04		2.9						2.9
05		2.7						3.1
06		2.5						3.1
07		3.9						3.3
08		5.9						3.5
09		7.1						3.5
10		7.7						3.4
11		8.3						3.4
12		8.3						3.4
13		7.9						3.4
14		7.8						3.4
15		7.5						3.4
16		6.8						3.4
17		5.9						3.3
18		5.1						3.3
19		4.1						3.2
20		3.2						3.0
21		2.9						2.9
22		3.0						2.8
23		3.1						2.8

Time: 0.0°.
Length of time sweep: Manual operation.
Average values.

Table 14 (Provisional Data)

St. John's, Newfoundland (47.7°N, 52.7°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.4						3.3
01		3.4						3.2
02		3.3						3.4
03		3.2						3.2
04		3.0						3.3
05		2.9						3.4
06		2.8						3.4
07		4.4						3.4
08		6.5						3.6
09		7.8						3.5
10		8.5						3.5
11		8.9						3.5
12		9.3						3.5
13		9.0						3.5
14		8.8						3.5
15		8.9						3.5
16		8.7						3.5
17		7.4						3.6
18		6.4						3.6
19		5.4						3.3
20		4.5						3.4
21		4.2						3.3
22		3.9						3.3
23		3.5						3.3

Time: 52.5°W.
Length of time sweep: Manual operation.
Median values.

Table 15 (Provisional Data)

Colombo, Ceylon (6.6°N, 80.0°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		7.1						3.5
01		7.0						3.1
02		6.1						3.3
03		5.5						3.3
04		4.7						3.4
05		4.0						3.4
06		4.6						3.2
07		7.6						3.9
08		8.9						2.8
09		9.0						2.6
10		8.9						2.6
11		9.1						2.5
12		9.5						2.5
13		10.0						2.5
14		10.4						2.5
15		10.8						2.5
16		10.5						2.5
17		10.1						2.5
18		10.0						2.3
19		9.0						2.3
20		9.8						2.5
21		9.5						2.6
22		8.5						3.0
23		7.6						3.1

Time: Local.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Average values.

Table 16 (Provisional Data)

Cape York, Australia (11.0°S, 142.4°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		9.6						3.0
01		8.6						3.0
02		8.2						3.0
03		7.6						3.0
04		6.7						2.9
05		6.4						3.0
06		7.1						3.2
07		8.3						3.2
08		8.9						3.0
09		9.5						2.8
10		10.3						2.7
11								
12								
13								
14								
15								
16								
17								
18		9.9						2.7
19		9.9						2.7
20		10.2						2.7
21		10.4						2.8
22		10.4						3.0
23		10.3						3.0

Time: Local
Length of time sweep: 1.0 Mc to 13.0 Mc in one minute, fifty-five seconds.
Median values.

Huancayo, Peru (12.0°S, 75.3°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01		6.4						3.2
02		5.8						3.2
03		4.5						3.2
04		3.6						3.3
05		3.6						3.1
06		7.2						3.1
07		9.3						3.1
08		10.7						2.8
09		11.0						2.6
10		11.0						2.[illegible]
11		10.2						2.[illegible]
12		10.1						[illegible]
13		10.0						[illegible]
14		10.0						[illegible]
15		9.3						[illegible]
16		10.2						2.5
17		10.5						2.[illegible]
18		10.0						2.[illegible]
19		9.7						2.5
20		9.8						2.4
21		9.8						2.4
22		7.9						2.6
23								

Time: 75.0°W.
Length of time sweep: 16.0 Mc to 0.5 Mc in fifteen minutes.
Median values.

Rarotonga I. (21.4°S, 159.6°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		10.7						
01		9.8						
02		7.8						
03		7.4						
04		7.0						
05		7.4						
06		8.0						
07		9.3						
08		9.8						
09		10.9						
10		11.6						
11		12.2						
12		12.3						
13		13.[illegible]						
14		13.2						
15		12.[illegible]						
16		12.[illegible]						
17		11.4						
18		11.2						
19		10.9						
20		10.2						
21		10.5						
22		10.5						
23		10.7						

Time: 157.5°W.
Length of time sweep: 2.0 Mc to 16.0 Mc. Manual operation.
Median values.

Table 19 (Provisional Data)

Brisbane, Australia (27.5°S, 153.0°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		7.9						3.0
01		7.5						3.1
02		6.8						3.1
03		6.3						3.0
04		6.0						3.0
05		5.9						3.2
06		6.6						3.3
07		7.2						3.2
08		7.8						3.1
09		8.7						3.0
10		9.5						3.0
11		9.9						3.0
12		10.2						3.0
13		10.2						3.0
14		9.9						3.0
15		9.7						3.1
16		9.3						3.0
17		8.9						3.1
18		9.0						3.0
19		8.8						3.0
20		8.4						2.9
21		8.2						2.9
22		8.2						2.9
23		8.2						2.9

Time: Local.
Length of time sweep: 2.2 Mc to 12.5 Mc in two minutes, thirty seconds.
Median values.

Table 20 (Provisional Data)

Watheroo, W. Australia (30.3°S, 115.9°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		5.9						2.8
01		5.6						2.9
02		5.2						2.9
03		4.9						2.9
04		4.6						2.9
05		5.0						3.1
06		5.8						3.2
07		6.4						3.1
08		6.9						3.0
09		7.4						2.9
10		8.0						2.8
11		8.7						2.8
12		9.2						2.8
13		9.4						2.9
14		9.2						2.9
15		9.0						2.9
16		8.8						2.9
17		8.6						3.0
18		8.4						3.0
19		8.0						3.0
20		7.1						2.9
21		6.4						2.9
22		6.1						3.8
23		6.0						2.8

Time: Local.
Length of time swe : 16.0 Mc to 0.5 Mc in fifteen minutes.
Median values.

Capetown (Simonstown), Union of S.Africa (33.9°S, 18.7°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		4.5						2.7
01		4.4						2.8
02		4.3						2.8
03		4.1						2.8
04		4.0						2.8
05		5.3						3.0
06		6.5						3.0
07		7.4						2.9
08		8.3						2.7
09		8.8						2.6
10		8.5						2.6
11		10.1						2.7
12		10.4						2.7
13		10.3						2.7
14		10.2						2.7
15		9.9						2.8
16		9.4						2.8
17		9.1						2.9
18		8.6						2.9
19		7.8						2.9
20		6.6						3.0
21		5.4						2.9
22		4.8						2.8
23		4.6						2.7

Time: 15.0°E.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Average values.

Canberra, Australia (35.3°S, 149.0°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		6.3						2.9
01		6.3						2.9
02		5.4						3.0
03		4.8						3.0
04		4.2						5.9
05		4.6						3.0
06		5.5						3.0
07		6.4						3.0
08		6.7						3.0
09		7.6						3.0
10		7.8						2.9
11		8.0						2.9
12		8.1						2.9
13		8.2						2.9
14		8.0						2.9
15		8.1						2.9
16		8.0						2.9
17		8.0						2.9
18		7.8						2.9
19		7.5						3.0
20		7.1						3.0
21		6.8						3.0
22		6.8						2.9
23		6.7						3.0

Time: Local.
Length of time sweep: 1.6 Mc to 12.5 Mc in two minutes.
Median values.

Table 23 (Provisional Data)

Christchurch, N.Z. (43.5°S, 172.6°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	6.5						
01	270	6.3						
02	250	5.9						
03	250	5.3						
04	250	5.0						
05	250	5.0				1.6		
06	260	5.9	250	3.9		2.3		
07	280	6.7	240	4.3		2.8		
08	300	7.4	230	4.6		3.1		
09	300	7.7	220	4.9		3.3		
10	300	8.0	220	5.0		3.5		
11	310	7.8	210	5.0		3.4		
12	310	7.9	220	5.1		3.6		
13	320	7.7	220	5.0		3.5		
14	320	7.6	220	5.0		3.5		
15	300	7.8	220	4.8		3.3		
16	300	7.7	230	4.5		3.1		
17	290	7.7	250	4.2		2.8		
18	280	7.9	250	3.7		2.2		
19	260	8.3						
20	260	8.4						
21	260	7.8						
22	260	7.4						
23	260	7.0						

Time: 172.5°E.
Length of time sweep: 1.0 Mc to 13.0 Mc. Automatic.
Median values.

Table 24 (Provisional Data)

Campbell I. (52.5°S, 169.0°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								
04								
05		5.2						3.0
06								
07		6.1						3.0
08		6.6						3.0
09		7.1						3.0
10		7.2						1.9
11		7.4						2.9
12		7.3						2.9
13		7.5						2.9
14		7.3						2.9
15		7.3						2.9
16		7.3						2.9
17		7.6						2.8
18		7.9						2.8
19		8.0						2.8
20								
21		7.6						2.7
22								
23								

Time: 165.0°E.
Length of time sweep: 1.0 Mc to 15.0 Mc. Manual operation.
Median values.

Table 25

Washington, D. C. December, 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	280	2.6					2.7	3.0
01	280	3.0					2.7	3.0
02	270	3.0					2.3	(3.0)
03	260	3.2					2.2	3.0
04	250	3.2					2.4	(3.1)
05	240	3.0					3.0	3.2
06	250	2.7					3.8	3.1
07	240	3.6					4.0	(3.2)
08	220	6.2			110	(1.9)	4.1	3.4
09	230	6.9	210	(3.4)	110	(2.4)	3.9	3.5
10	230	7.4	210	(3.8)	110	(2.8)	3.9	3.5
11	240	8.0	210	(4.0)	110	(3.0)	4.0	3.3
12	250	8.6	210	(4.1)	110	(3.1)	3.9	3.3
13	240	8.4	220	(4.0)	110	(3.0)	3.9	3.3
14	240	8.0	230	(3.8)	110	2.8	3.8	3.3
15	240	7.9	220		110	2.4	3.7	3.3
16	230	7.7			110	(1.9)	3.8	3.3
17	210	6.6					2.4	3.4
18	220	5.5					2.4	3.3
19	230	4.8					2.4	3.3
20	240	3.8					2.7	3.3
21	250	3.2					2.9	3.1
22	280	2.8					2.4	3.0
23	280	2.6					3.8	3.0

Time: 75.0°W.
Length of time sweep: 0.75 Mc to 11.5 Mc in 3.4 minutes supplemented by 0.8 Mc to 14.0 Mc in two minutes.
Median values.

Table 26

Churchill, Canada (58.8°N, 94.2°W) November, 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	290	4.4						3.0
01	300	4.0						2.9
02	300	4.0						2.9
03	300	3.8						2.9
04	310	3.6						2.9
05	320	3.8						2.9
06	300	3.8						2.9
07	295	3.5						3.0
08	250	4.6						3.2
09	240	6.0				3.3		3.2
10	250	7.7	230	3.4	130	2.8		3.2
11	240	8.2	220	3.4	130	2.6		3.1
12	250	9.0	225	3.6	130	2.5		3.1
13	240	9.4	240	3.4	130	2.6		3.1
14	240	9.6			130	2.6		3.2
15	230	9.6			135	2.8		3.2
16	230	8.6						3.1
17	240	7.4						3.1
18	240	5.7						3.1
19	260	4.7						3.0
20	270	4.5						2.8
21	285	4.6						3.0
22	290	4.2						3.0
23	280	4.1						2.9

Time: 90.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 27

(Corrections and additions to previously published provisional data)

Prince Rupert, Canada (54.3°N, 130.3°W) November 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	270							
01	280							
02	280	2.0						
03	300							
04	290							
05	285							
06	270							
07	250							
08	210		180	2.6				
09	190		180	3.2				
10	200	7.4	180	3.3	100	2.2		
11	200		180	3.4	100	2.5		
12	200		180	3.8	100	2.6		
13	200		180	3.7	100	2.6		
14	200		180	3.9	100	2.4		
15	200		190	4.0	100	2.4		
16	190		180			2.1		
17	180		170					
18	190		170					
19	190							
20	200	3.0						
21	220	2.6						
22	250							
23	250	2.0						

Time: 120.0°W.
Length of time sweep: Manual operation.
Median values.

Table 28

Ottawa, Canada (45.5°N, 75.8°W) November, 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	290	3.0						3.0
01	280	2.9						3.0
02	300	2.8						3.0
03	320	3.0						2.9
04	280	2.9						3.0
05	280	2.8						3.1
06	270	2.5						3.1
07	240	4.2						3.1
08	230	6.4						3.2
09	220	7.8			130	2.5		3.2
10	220	8.4			120	2.7	3.8	3.1
11	210	9.0			130	2.9	3.3	3.1
12	210	9.6			130	2.9	2.9	3.1
13	220	9.4			130	2.9	3.7	3.0
14	230	9.5			130	2.7		3.0
15	230	9.2			130	2.5	2.8	3.1
16	230	8.8						3.2
17	220	7.9						3.0
18	230	6.8						3.0
19	240	5.5						3.1
20	250	4.6						3.0
21	260	3.9						3.0
22	275	3.3						3.0
23	280	3.1						3.0

Time: 75.0°W.
Length of time sweep: 1.93 Mc to 13.5 Mc. Manual operation.
Median values.

(Corrections and additions to previously published provisional data)

Boston, Massachusetts (42.4°N, 71.2°W) November 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	265							
01	270							
02	270							
03	262	3.4						
04	250							
05	240							
06	245							
07	230				135	1.8		
08	225				125	2.2		
09	230				120	2.7		
10	230				120	2.9		
11	240				120	3.0		
12	240	9.6			122	3.0		
13	240				120	2.8		
14	240				125	2.7		
15	240				125	2.2		
16	225				140	1.8		
17	215							
18	225							
19	240							
20	250							
21	250							
22	275							
23	270							

Time: 75.0°W.
Length of time sweep: 0.85 Mc to 13.75 Mc in one minute.
Median values.

Table 31

(Corrections and additions to previously published provisional data)

Baton Rouge, Louisiana (30.5°N, 91.2°W) November 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280							
01	280	3.6						
02	280	3.7						
03	260							
04	260							
05	260							
06	260							
07	250							
08	250		240	3.6	130	2.4		
09	250		230	4.2	120	2.8		
10	250		230	4.5	120	3.1		
11	255		220	4.6	120	3.2		
12	255		230	4.6	120	3.3		
13	270		230	4.6	120	3.2		
14	260		230	4.6	120	3.1		
15	250		240	4.2	120	2.8		
16	250		240	3.4	130	2.3		
17	230	7.5						
18	210							
19	240							
20	250	3.7						
21	255							
22	260							
23	260							

Time: 90.0°W.
Length of time sweep: 1.9 Mc to 9.8 Mc in three minutes, thirty seconds.
Median values.

(Corrections and additions to previously published provisional data)

San Francisco, California (37.4°N, 122.2°W) November 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	280						3.5	
01	270						3.4	
02	260						3.4	
03	260						3.3	
04	250						3.3	
05	260						3.3	
06	260						3.4	
07	240					1.8	3.4	
08	230		230	3.5	120	2.4	3.4	
09	240		220	3.8	120	2.8	3.7	3.2
10	240		220	4.3	110	3.0	3.7	
11	240	9.0	200	4.4	110	3.2	3.8	
12	250	9.2	220	4.4	110	3.3	3.8	
13	250		220	4.4	110	3.3	3.8	
14	240		230	4.2	110	3.1	3.7	
15	240		230	3.7	110	2.7	3.6	
16	225				110	2.3	3.4	
17	220						3.4	
18	220						3.2	
19	230						3.3	
20	240						3.3	
21	250						3.0	
22	260						3.3	
23	270						3.7	

Time: 120.0°W.
Length of time sweep: 0.8 Mc to 12 Mc in six minutes. Record centered on the hour.

Median values.

Table 32

Chungking, China (29.4°N, 106.8°E) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	314	4.5						2.8
01								
02								
03								
04								
05								
06		4.9	230					2.9
07	255	8.0	234	4.0				3.0
08	254	8.9	228	4.5				3.0
09	260	10.0	231	4.5				3.1
10	260	10.7	214	4.7				3.0
11	260	11.1	216	4.8				3.0
12	267	11.9D	217	4.8				2.9
13	262	12.8D	218	4.7				3.0
14	256	12.8D	221	4.6				2.9
15	243	11.9D	220	4.5				3.0
16	232	10.6	222	4.3				3.0
17	228	9.3		4.2				3.0
18	227	7.6						3.0
19	242	6.9						2.8
20	268	5.9						2.9
21	269	5.2						2.9
22	276	4.7						2.9
23	306	4.4						2.9

Time: 105.0°E.
Length of time sweep: 3.3 Mc to 12.3 Mc in fifteen minutes.
Median values.

Table 33

San Juan, Puerto Rico (18.4°N, 66.1°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		4.3						3.0
01		4.5						3.1
02		4.6						3.2
03		4.0						3.2
04		3.4						3.0
05		3.5						2.9
06		3.5						2.9
07	220	6.1						3.3
08	220	7.6	200	3.6				3.3
09	250	8.7	200	3.9		3.0		3.2
10	270	9.3	200	4.3		3.2		3.2
11	270	9.4	200	4.6		3.3		3.2
12	270	9.4	200	4.7		3.3		3.2
13	280	9.4	210	4.7		3.3		3.2
14	270	9.2	200	4.4		3.2		3.1
15	255	9.0	195	4.2		3.1	4.2	3.1
16	230	8.8	230	3.9			3.8	3.2
17	210	8.1					3.3	3.3
18	210	7.0						3.3
19	220	5.0						3.3
20		4.2						2.9
21		4.2						2.9
22		4.2						2.9
23		4.2						2.9

Time: 60.0°W.
Length of time sweep: Record centered on the hour.
Median values

Table 34

(Corrections and additions to previously published provisional data)

Trinidad, Brit. West Indies (10.6°N, 61.2°W) November, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								3.3
03							2.0	3.2
04							2.1	
05							2.4	
06								
07					120			
08					120			
09					120			
10					120			
11					120			3.2
12					120		3.6	
13					120			
14		9.9			120			
15					120			
16					120			
17			-	-	120			
18		7.5						
19								
20		5.4					2.5	
21		4.9					2.0	
22								
23							1.7	

Time: 60.0°W.
Length of time sweep: 2.0 Mc to 16.0 Mc in one minute.
Median values.

Table 35

(Corrections and additions to previously published provisional data)

Fairbanks, Alaska (64.9°N, 147.8°W) October, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	330							
01							5.1	
02								
03							4.9	
04						-	3.8	
05	312					-	3.7	
06								
07			-					
08	255							3.2
09			225					
10		6.0						
11	247	6.3	225					
12							-	
13	248	6.7					-	
14	[illegible]		-	-				3.1
15	[illegible]							
16							-	
17	[illegible]							
18						-		
19	245					-		
20	255					-		
21								
22	265							
23						-		

Time: 150°W
Length of time sweep: 16 Mc to 0.5 Mc in fifteen minutes.
Median values.

Table 36

Oslo, Norway (59.9°N, 11.0°E) October, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		3.8						
01		3.4						
02		3.3						
03		3.3						
04		3.1						
05		2.6						
06		3.2						
07		4.3				1.8		
08		5.2				2.2		
09		5.6				2.4		
10		6.0				2.4		
11		7.3				2.6		
12		7.3				2.7		
13		7.6				2.6		
14		7.4				2.4		
15		7.5				2.4		
16		6.0				2.0		
17		6.4				1.6		
18		5.8						
19		5.1						
20		4.8						
21		4.3						
22		3.8						
23		3.4						

Time: 15.0°E.
Length of time sweep: 16.0 Mc to 1.63 Mc in ten minutes.
Median values.

Table 37

(Corrections and additions to previously published provisional data)

Chungking, China (29.4°N, 106.8°E) October 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00		5.2						3.0
01								
02								
03								
04								
05								
06			230	4.1				3.1
07			211	4.5				3.6
08		8.8	204	4.7				3.4
09		9.4	215	4.8				3.2
10		11.2	213	5.0				3.1
11		12.8	207	5.0				
12			199	5.0				
13		13.1D	210	5.0				
14			214	4.9				
15			219	4.6				3.1
16		12.2D	209	4.5				3.3
17		11.3	210	4.3				3.4
18		9.2						3.5
19								3.2
20								3.1
21		6.7						3.1
22								3.1
23								3.0

Time: 105.0°E.
Length of time sweep: 3.3 Mc to 12.3 Mc in fifteen minutes.
Median values.

Table 38

(Corrections and additions to previously published provisional data)

Christmas I. (1.9°N, 157.3°W) October 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00								
01								
02								
03								3.3
04								3.2
05								3.2
06							2.8	
07					100			3.0
08					100			2.8
09					100		7.2	2.6
10					100			
11								
12								
13								
14	310							
15					100			
16					100			2.6
17					100			
18								
19								2.5
20								
21		10.1						2.6
22								2.8
23								3.2

Time: 150.0°W.
Length of time sweep: 1.6 Mc to 12.5 Mc in 2 minutes.
Median values.

Table 39

(Corrections and additions to previously published provisional data)

Cape York, Australia (11.0°S, 142.4°E) October 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	250	8.6					2.6	3.2
01	225	7.2					2.3	3.2
02	225	6.0					2.2	3.0
03	258	5.7					2.3	2.9
04	260	4.7					2.2	2.9
05	275	4.7					2.5	2.9
06	275	4.9				1.5	2.7	3.0
07	250	7.2				2.3	3.1	3.2
08	275	9.5	232	4.5		3.0	3.5	3.2
09	290	9.4	225	5.0		3.4	3.5	3.0
10	308	10.1	220	5.0		3.5	4.0	3.0
11	325	10.5	200	5.1			4.0	2.9
12	310		200	5.2		3.9	3.9	
13	300		200	5.1		3.8	4.0	
14	310	10.5	202	5.0		3.8	4.0	3.0
15	300	10.2	230	5.0		3.5	3.9	3.0
16	300	10.0	230	4.6	108	3.3	3.5	3.0
17	285	9.5	240	4.4		2.7	3.5	3.1
18	260	9.0				2.1	3.8	3.0
19	280	8.7					3.5	2.9
20	290	8.6					3.0	2.8
21	270	8.5					3.0	3.0
22	255	8.5					2.8	
23	250	9.8					2.4	3.0

Time: 150.0°E.
Length of time sweep: 1.0 Mc to 13.0 Mc in one minute, fifty-five seconds.
Median values.

Table 40

(Corrections and additions to previously published provisional data)

Brisbane, Australia (27.5°S, 153.0°E) October 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	260							
01								
02								
03								
04								
05								
06								
07			210					
08		7.9	200				3.0	
09		8.5					3.7	
10								
11								
12								
13		9.2						
14								
15								
16							2.8	
17							3.0	
18							2.4	
19							2.7	
20								
21	280						3.0	
22	270							
23								

Time: 150.0°E.
Length of time sweep: 2.2 Mc to 12.5 Mc in two minutes, thirty seconds
Median values.

Table 41

(Corrections and additions to previously published provisional data)

Canberra, Australia (35.3°S, 149.0°E) — October 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03		4.0						
04	280							
05								
06								
07		6.0						
08		6.9	220					
09		7.2						
10							3.7	
11		8.0						
12	300	8.2	200					
13		8.1						
14								
15		7.7						
16		7.7						
17								
18								
19							2.4	
20								
21	260						2.1	
22							2.3	
23								

Time: 150.0°E.
Length of time sweep: 1.6 Mc to 12.5 Mc in two minutes.
Median values.

Table 42

Peshawar, India (34.0°N, 71.5°E) — September 1945

Time	°h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00								
01								
02								
03								
04								
05								
06	288	5.1				2.8		
07	299	6.3				3.3		
08	300	7.0				3.4		3.1
09	322	7.6				3.5		
10	325	8.0				3.5		
11	327	8.7				3.5		
12	338	8.6				3.5		2.8
13	341	8.6				3.5		
14	339	8.7				3.6		
15	330	8.5				3.5		
16	322	8.1				3.5		3.1
17	322	7.6				3.6		
18	314	7.3				3.4		
19	311	6.8				3.2		
20	316	5.7				3.1		3.1
21	318	5.4				2.9		
21	329	5.2				3.0		
23								

Time: Local.
Length of time sweep: Manual operation.
Average values.
°Height at 0.83 foF2.

Table 43

(Corrections and additions to previously published provisional data)

Delhi, India (28.6°N, 77.2°E) — September 1945

Time	°h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	342	4.4						2.9
01	325	4.4						
02	318	3.9						
03	315	3.7						
04	318	3.4						2.9
05	300	3.3						
06	325	4.6				3.1		
07	336	6.3				4.0		
08	362	7.5				4.3		3.0
09	372	7.9				4.4		
10	406	8.4				4.7		
11	416	9.7				5.2		
12	406	10.5				4.7		2.7
13	406	10.9				4.9		
14	412	11.1				4.7		
15	408	11.2				5.2		
16	388	11.0				4.6		
17	367	9.3				5.3		2.7
18	360	8.1				5.3		
19	365	7.1				5.5		
20	377	6.0						
21	375	5.1				3.7		2.7
22	363	4.8						
23	355	4.5						

Time: Local
Length of time sweep: Manual operation.
Average values.
°Height at 0.83 foF2.

Table 44

Bombay, India (19.0°N, 73.0°E) — September 1945

Time	°h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	300	6.2						3.1
01	308	5.6						
02	315	5.0						
03	293	4.1						
04	282	3.7						3.2
05	255	3.3						
06	249	5.0						
07	266	6.9						
08	291	8.1						3.1
09	339	9.0						
10	380	10.0				4.2		
11	404	10.2				4.8		
12	423	11.6				4.3		2.6
13	403	12.0				4.3		
14	381	12.5				4.4		
15	347	13.0				4.5		
16	329	13.0				4.5		3.1
17	289	12.4				4.7		
18	287	11.9				4.5		
19	291	10.5						
20	294	8.5						3.0
21	321	6.5						
22	350	5.4						
23	352	6.9						

Time: Local
Length of time sweep: Manual operation.
Average values.
°Height at 0.83 foF2.

Table 45

Madras, India (13.0°N, 80.2°E) September 1945

Time	*h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		7.6						2.9
01								
02								
03								
04		3.1						
05								
06	283	5.0						
07	307	7.4				3.2		
08	367	8.2				3.5		2.9
09	428	8.3				4.1		
10	446	8.3				4.2		
11	452	8.2				4.8		
12	496	8.4				7.0		2.4
13	458	8.9						
14	436	9.2				4.5		
15	410	9.6				4.3		
16	376	10.2				4.3		2.7
17	370	10.6				4.4		
18	367	10.7						
19	347	10.3						
20	329	9.8						2.7
21	310	9.4						
22	302	9.3						
23								

Time: Local
Length of time sweep: Manual operation.
Average values.
*Height at 0.83 foF2.

Table 46

(Corrections and additions to previously published provisional data)

Colombo, Ceylon (6.6°N, 80°E) September 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00		5.4						
01		4.3						
02		3.5						
03		3.0						3.4
04		2.3						3.4
05								3.4
06		4.1						
07		7.3					3.3	
08		8.6				3.0	4.0	
09		8.6					6.6	2.6
10		7.7		4.7			6.9	
11				4.8		3.8	7.0	
12		7.8		4.8			7.0	
13		8.2		4.8		3.7	7.0	
14				4.7		3.5	7.0	
15		9.2				3.2	5.4	
16		9.8				2.9	3.6	2.9
17		10.0					3.0	
18		10.2						
19		9.1						
20		9.8						
21								3.0
22		8.8						3.4
23		7.7						

Time: Local.
Length of time sweep: 2 Mc to 16 Mc in one minute.
Median values.

Table 47

(Corrections and additions to previously published provisional data)

Cape York, Q., Australia (11.0°S, 142.4°E) September 1945

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	F2-M3000
00	220	6.1					2.7	3.3
01	205	4.5					2.7	3.5
02	250	2.6					2.1	3.0
03	290	2.4					1.8	3.0
04	285	2.5					2.5	2.9
05	275	2.6					2.0	3.0
06	290	2.7					2.5	3.0
07	250	6.0				2.1	2.9	3.3
08	275	7.6	240	4.4		2.8	3.5	3.3
09	290	9.0	225	4.6		3.2	3.8	3.2
10	300	9.4	205	4.7		3.5	3.6	3.2
11	305	9.5	200	4.8		3.5	3.8	3.0
12	300	9.7	200	4.9		3.6	4.5	3.0
13	312	9.5	200	4.8	100	3.5	4.0	3.0
14	300	9.2	190	4.8	100	3.5	3.8	3.0
15	300	8.8	200	4.8	105	3.4	3.5	3.1
16	290	8.2	210	4.4		3.1	3.7	3.1
17	275	7.9	225	4.0	110	2.7	3.1	3.1
18	260	7.5				2.0	2.9	3.0
19	250	7.3					2.7	3.0
20	260	7.5					2.8	3.0
21	250	7.5					3.0	3.1
22	250	6.9					3.0	3.0
23	250	7.0					2.2	3.2

Time: 150°E.
Length of time sweep: 1.0 Mc to 13.0 Mc in one minute, fifty-five seconds.
Median values.

Table 48

(Corrections and additions to previously published provisional data)

Brisbane, Q., Australia (27.5°S, 153.0°E) September, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270							
01								
02								
03								
04								
05								
06								
07								
08				4.4				
09			220	4.6				
10								
11	290	7.5			112			
12	290	7.5					3.7	
13								
14			210				3.2	
15								
16				3.7		2.6		
17								
18								
19								
20								
21								
22	280							
23								

Time: 150.0°E.
Length of time sweep: 2.2 Mc to 12.5 Mc in two minutes, thirty seconds.
Median values.

Table 49

(Corrections and additions to previously published provisional data)

Canberra, Australia (35.3°S, 149.0°E) September, 1945

Time	h'F2	f°F2	h'F1	f°F1	h'E	f°E	fEs	F2-M3000
00	270	4.1						2.8
01	270	4.0						2.9
02	260	3.9						3.0
03	250	3.5						3.0
04	260	3.3						2.9
05	270	3.0						2.9
06	260	3.5						3.0
07	260	4.6			120	2.1		3.1
08	270	5.7	220	4.0	110	2.6		3.1
09	290	6.2	220	4.1	110	3.0		3.1
10	290	6.6	210	4.3	110	3.2		3.1
11	290	7.0	210	4.5	110	3.4		3.0
12	300	7.1	210	4.5	110	3.5		3.1
13	290	7.1	210	4.5	110	3.4		3.1
14	290	6.9	210	4.4	110	3.2		3.1
15	270	6.7	210	4.1	110	3.0		3.1
16	270	6.1	210	3.7	110	2.7		3.2
17	260	5.8	220	2.8	120	2.1		3.1
18	250	5.5						3.1
19	250	4.9						3.0
20	260	4.6						3.0
21	270	4.6						3.0
22	260	4.3						3.0
23	260	4.4						3.0

Time: 150.0°E.
Length of time sweep: 1.6 Mc to 12.5 Mc in two minutes.
Median values.

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 50
IONOSPHERE DATA-I

Hourly values of h'F2 in km for December 1945 (Month)

Records measured by: J.M.C. J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	260	260	260	230	230	220	230	230	230	230	240	230	250	230	230	220	210	210	230	220	240	260	260
2	280	270	270	260	240	230	220	230	230	230	230	230	230	240	250	230	220	210	220	230	220	260	270	280
3	270	280	270	270	260	230	220	230	210	230	240	240	230	240	240	250	220	210	210	240	240	270	(280)	270
4	280	250	250	260	240	240	220	220	220	230	210	220	250	230	240	230	220	210	210	240	250	A	260	280
5	280	280	270	260	230	220	220	220	230	240	220	230	230	250	250	240	230	230	230	240	230	250	280	250
6	240	240	270	260	[260]C	280	230	220	220	230	240	240	(240)	240	230	240	210	220	220	250	240	250	280	270
7	250	250	250	240	250	280	250	230	220	230	220	230	230	240	240	230	230	200	220	250	(260)	230	(280)	(240)
8	(270)	(270)	270	260	260	220	220	(250)	210	240	230	240	230	240	240	230	220	230	230	230	240	240	290	280
9	290	260	250	240	220	230	240	250	230	220	240	240	240	240	240	230	220	230	210	230	240	260	260	270
10	300	(280)	280	260	240	240	260	240	220	220	240	240	250	240	240	240	210	200	220	220	220	250	280	(290)
11	(290)	290	260	240	230	230	250	230	220	230	240	240	250	250	250	230	210	200	210	220	230	(270)	270	(280)
12	(280)	250	250	240	240	220	240	230	220	230	240	230	260	240	240	230	230	200	220	230	230	240	270	270
13	270	280	270	240	250	220	250	240	230	220	230	260	250	230	260	250	230K	260K	240K	230K	270K	300K	330K	280K
14	340K	340K	340K	310K	280K	320K	290K	310K	280K	360K	450K	450K	550K	520K	380K	340K	280K	260K	250K	250K	260K	290K	(300)K	(320)K
15	(320)K	(320)K	300K	270K	250K	250K	270K	240	240	240	260	250	260	260	250	260	240	240	(260)	230	240	260	290	280
16	300	280	280	250	240	240	(240)	260	220	220	240	240	260	240	230	220	240	210	220	220	240	280	290	300
17	280	300	260	240	250	240	260	250	230	230	240	250	230	250	250	230	240	220	(230)	220	230	[240]A	240	260
18	240	280	270	260	250	250	240	230	210	210	220	240	240	230	230	250	230	230	220	250	240	250	A	A
19	A	280	260	260	260	270	250	240	220	230	220	(270)	240	250	240	250	240	240	(270)	300	(310)	(300)	280	290
20	250	280	290	300	310	300	280	260	260	260	280	280	270	280	270	280	240	240	240	250	230	240	300	300
21	340	340	290	290	280	(280)	300	290	270	280	290	270	250	260	250	240	220	230	240	240	240	250	(300)	(300)
22	280	270	270	260	250	240	250	240	230	230	240	260	250	240	240	240	220	210	210	220	240	270	270	280
23	280	280	270	270	270	270	270	230	220	220	220	240	240	250	250	240	240	230	220	220	200	230	290	(300)
24	290	270	260	260	(280)	290	(300)	(280)	250	250	270	260	250	250	240	230	230	210	220	230	220	230	250	300
25	280	280	260	250	240	240	250	250	230	220	240	250	260	250	260	250	220	210	240	200	240	310	300	270
26	270	250	280	260	230	230	280	260	240	230	220	240	240	260	250	250	240	220	230	230	240	260	260	300
27	(280)	[270]A	280	260	(250)	240	(260)	(240)	220	220	230	240	240	230	240	240	220	200	230	220	240	250	(270)	280
28	290	(290)	270	260	240	220	240	250	230	240	230	240	250	240	240	230	230	210	210	230	220	210	270	(270)
29	(290)	280	260	250	260	200	(250)	280	220	230	230	210	250	240	230	220	220	210	240	210	270	230	(260)	(300)
30	(280)	(280)	260	250	230	(230)	(280)	250	210	230	220	230	250	240	250	220	230	200	240	230	[250]A	260	260	(280)
31	[280]A	(280)	260	230	230	230	240	260	220	220	230	270	(240)	230H	240	220	220	220	210	230	250	270	(300)A	[290]A
Sum																								
Median	280	280	270	260	250	240	250	240	220	230	230	240	250	240	240	240	230	210	220	230	240	250	280	280

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 51
IONOSPHERE DATA-2

Hourly values of f^oF_2 in Mc for December (Month) 1945

Records measured by: J.M.C. J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	$(3.2)^F$	3.3^F	$(3.4)^F$	3.8^F	3.9^F	3.9^F	3.8	5.1	7.0	7.8	7.8	8.2	8.1	8.3	8.4	8.0	7.6	(7.0)	5.7	4.8	4.0	3.2	3.1	$(2.9)^F$
2	3.2	3.5	3.7	3.8	4.0	3.7	3.4	4.6	7.2	(8.5)	8.3	(8.8)	8.0	8.6	8.4	8.6	8.2	7.0	5.8	5.2	3.8	3.2	2.9	2.8
3	3.1	3.3^F	3.7^F	4.0	4.2	4.1	3.6	4.3	6.2	7.5	7.8	9.6	7.9	8.4	8.0	8.4	7.6	7.2	5.4	4.5	3.8	3.2	2.9	2.8
4	3.4	3.7	3.9	4.0	4.2	4.4	4.6	4.8	6.6	(8.2)	7.6	(8.2)	(8.6)	7.4^H	8.0	7.2	6.8	7.0	5.1	3.8	3.4	$(3.3)^J$	2.7	2.6
5	2.7	3.1	3.4	3.6	3.7^F	3.4	2.7	$(3.7)^F$	6.4	7.2	7.2	6.6	7.4	7.8	7.9	7.8	7.4	(6.4)	(5.6)	5.0	4.5	3.7	3.5	3.7
6	3.4^F	3.7	(4.0)	$[4.4]^C$	$[4.1]^C$	4.0	4.3	5.0	7.2	8.0	8.2	8.6	9.8	8.8	8.5	(8.8)	7.4	(6.8)	5.6	(5.0)	4.5	3.3	3.2	4.0
7	3.7^F	3.8	3.8	3.7	3.7	3.5	3.3^F	3.8^F	6.2	6.8	8.6	8.6	8.4	8.1	7.8	8.2	(8.0)	6.2	4.7	4.4	3.8	3.1	2.8	3.0
8	3.2	3.4	3.8	4.0	4.4	4.2	3.6	4.2	6.1	7.6	8.4	8.6	9.0	8.8	9.0	8.3	7.8	6.6	5.8	5.2	4.1	(3.3)	3.0	(3.0)
9	3.0	3.6^F	4.0	4.0	3.8	3.6	3.6	4.2	6.6	6.8	8.6	8.6	(8.6)	8.8	8.6	8.4	7.5	6.0	5.1	4.9	3.8	3.3^F	3.3^F	$(2.5)^F$
10	$(2.5)^F$	$(2.6)^F$	$(2.8)^F$	$(2.9)^F$	$(3.0)^F$	$(2.7)^F$	$(2.7)^F$	$(3.6)^F$	6.7	7.0	7.6	8.4	9.3	8.2	8.4	7.9	7.2	(6.2)	5.5	4.6	3.1^F	2.2^F	2.0^F	1.9^F
11	$(2.4)^F$	$(3.0)^F$	$(3.0)^F$	$(3.0)^F$	$(2.9)^F$	$(3.0)^F$	$(2.6)^F$	$(4.0)^F$	6.2	(7.1)	7.0	(6.8)	8.2	8.4	8.0	7.4	6.6	6.0	4.3	4.0	3.0	(2.7)	$(2.3)^F$	$(2.2)^F$
12	$(2.3)^F$	2.3^F	2.9^F	$(3.4)^F$	$(3.5)^F$	3.2^F	3.0	3.7^F	5.9	6.8	7.2	(6.4)	8.0	8.4	7.6	6.9	(7.4)	(6.1)	5.1	(4.3)	3.3^F	2.7	2.6	2.4^F
13	2.5^F	3.0^F	$(2.9)^F$	3.2^F	3.1^F	3.0^F	2.7^F	3.5^F	6.4	6.8	6.6	7.9	9.2	7.8	8.4	8.8	8.6^K	9.4^K	$(9.0)^K$	7.0^K	4.5^K	4.2^K	$(3.3)^K$	$(3.4)^F$
14	$(2.7)^F_K$	2.4^F_K	$(2.6)^F_K$	2.7^F_K	2.2^F_K	2.3^F_K	$(2.1)^F_K$	2.6^F_K	4.2^K	4.8^K	4.4^K	4.3^K	4.1^K	4.1^K	4.7^K	4.8^K	5.0^K	4.8^K	4.1^K	3.4^F_K	$(2.6)^K$	2.1^F_K	1.9^K	1.8^F_K
15	1.9^F_K	1.9^F_K	2.1^F_K	2.6^K	2.5^K	2.5^K	2.2^K	(3.1)	5.2	6.6	(7.0)	7.3	7.7	8.4	7.6	(7.9)	7.8	6.6	6.0	4.3	(3.1)	$(2.7)^F$	(2.4)	2.3^F
16	2.4^F	$(2.4)^F$	$(2.8)^F$	$(3.1)^F$	$(3.1)^F$	$(3.0)^F$	$(2.8)^F$	$(3.2)^F$	6.4	6.8	7.6	8.0	9.2	8.8	7.4	7.3	8.0	7.6	(6.3)	5.1	4.3	(3.5)	3.1^F	3.4^F
17	3.7^F	3.7^F	3.9^F	4.0^F	3.7^F	3.1^F	2.7^F	$(3.7)^F$	6.6	7.8	8.3	9.4	9.2	8.4	(9.0)	8.4	(8.0)	6.8	6.4	(5.6)	4.8	3.7	3.2	3.0
18	2.8^F	2.3^F	2.7^F	2.9	2.8^F	2.7^F	(3.2)	3.6^F	6.6	(6.9)	7.6^F	8.6	9.2	8.9	(8.0)	9.2	8.4	(8.0)	5.5	4.4	4.3	3.3	A	A
19	A	3.6^F	3.3^F	3.1^F	3.1^F	2.9^F	3.0	3.8^F	6.2	8.4	(8.5)	8.2	9.2	8.6	8.6	8.9	8.2	(7.8)	(6.0)	5.4	5.6	5.3	4.9	4.8
20	(4.3)	3.7^F	3.1^F	$(3.2)^F$	3.8^F	3.9^F	3.8	3.4^F	4.7	5.6	6.4	7.2	7.2	8.0	8.0	8.5	7.8	7.6	7.1	6.8	5.9	(5.0)	3.7^F	(3.0)
21	$(2.0)^F$	2.2^F	$(2.8)^F$	$(2.4)^F$	$(3.2)^F$	$(2.7)^J$	2.9	3.1	4.3	4.9	6.4	7.7	7.2	7.5	6.8	7.0	6.3	6.0	4.9	4.5	3.8	2.6	2.2	2.3
22	2.3	2.7	2.7^F	3.1^F	3.2^F	3.2^F	(2.9)	$(3.6)^F$	6.2	6.8	7.2	9.0	8.6	8.6	(8.0)	7.4	6.6	6.0	5.2	3.9	3.5	3.0	2.9	2.7
23	2.6	2.7	2.7	2.7	2.6	2.7	2.7	3.6	(5.9)	7.2	(7.3)	(8.4)	8.6	7.5	9.0	8.1	8.3	(8.4)	7.6	7.2	5.1	3.2	3.6	3.5^F
24	3.6	3.7	3.7	3.4^F	2.9^F	2.6^F	2.3^F	$(2.7)^F$	4.5	(5.8)	(6.6)	(7.0)	8.6	7.6	(8.2)	7.6	7.7	6.6	5.2	5.1	4.2	3.3^F	2.7	(2.4)
25	2.7	2.8^F	3.2^F	3.2^F	3.2^F	2.3^F	2.0^F	2.7^F	5.1	(6.6)	(7.6)	8.0	8.6	9.0	9.0	(9.8)	9.2	8.3	7.0	5.7	3.4	3.0^F	3.2	3.4^F
26	2.4^F	3.3^F	3.2^F	3.9	4.0	$(3.4)^F$	$(2.1)^F$	$(2.3)^F$	5.4^F	6.5	7.1	8.2	8.4	8.4	8.0	8.5	8.4	6.7	5.4^F	5.4	$(3.7)^F$	(3.0)	2.5	2.4
27	2.4^F	$[2.8]^A$	$(2.8)^F$	$(2.8)^F$	2.6^F	2.4^F	2.3^F	2.9^F	(5.6)	(6.9)	7.4	7.8^F	(8.2)	(8.0)	8.0	(8.4)	(8.6)	6.0	5.8	4.5	3.7	3.2	2.4	2.3
28	2.3	2.3^F	2.4^F	2.9^F	2.6^F	2.6^F	2.7	$(3.0)^F$	6.0	7.5	7.2	7.8	8.6	9.0	(8.2)	7.6	(7.8)	6.0	4.7	5.0	4.5	2.7	2.3^F	2.0^F
29	2.1^F	2.4^F	$(2.6)^F$	3.0^F	$(3.0)^F$	$(3.5)^F$	2.0^F	$(2.9)^F$	5.8	7.6	8.6	(7.4)	7.8	8.2	(8.6)	7.2	7.2	5.6	5.3	3.5^F	(3.3)	3.2	2.2^F	2.2^F
30	2.2	2.4	2.3^F	2.5^F	$(3.1)^F$	2.8	2.4^F	3.0^F	5.2	6.8	6.6	5.6	8.6	8.0	(8.6)	7.2	7.6	5.8	4.9	3.8	$[3.3]^A$	2.6^F	2.3^F	2.1^F
31	2.1^F	2.2^F	$(2.8)^F$	$(3.0)^F$	$(2.9)^F$	$(2.9)^F$	2.6^F	(3.1)	5.2	6.4	(6.9)	(7.0)	(8.2)	7.9	6.9	6.6	6.4	(7.2)	(5.4)	3.5	3.6	2.6	(2.4)	(2.1)
Sum																								
Median	2.6	3.0	3.0	3.2	3.2	3.0	2.7	3.6	6.2	6.9	7.4	8.0	8.6	8.4	8.0	7.9	7.7	6.6	5.5	4.8	3.8	3.2	2.8	2.6

TABLE 52
IONOSPHERE DATA – 3

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Half hourly values of $f^{o}F2$ in Mc for December 1945
(Month)

Records measured by: J.M.C.
J.J.H.

TIME: 75° W MERIDIAN

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	3.3^F	3.4^F	3.6^F	3.9^F	3.9^F	3.9	3.8	6.1	7.8	8.2	8.4	8.4	8.0	8.8	8.2	7.8	7.5	6.3	5.1	4.4	3.6	3.0	3.0	3.1
2	3.3	3.5	3.8	3.8	3.8	3.6	3.5	6.2	7.7	7.6	8.8	8.6	8.0	8.5	8.8	8.4	8.2	5.8	5.5	4.5	3.2	3.0	2.7	2.9
3	3.2	3.5^F	3.8	4.1	4.2	4.0	(3.2)	5.5	6.8	7.0	8.8	9.1	8.2	8.4	8.0	8.0	7.6	6.4	5.0	4.2	3.5	3.0	2.7	3.2
4	3.6	3.8	3.8	4.2	4.3	4.7	4.8	6.0	7.4	8.0	7.0	8.6	8.2	(7.6)	7.3	7.2	(7.2)	6.2	4.4	3.6	3.2	2.9	2.6	2.6
5	2.9	3.1	3.4	3.9	3.8	(3.0)	2.6	5.3	7.0	6.8	6.8	8.2	8.0	7.5	8.2	8.3	6.8	(6.2)	5.2	4.8	3.8	3.3	3.6	3.6
6	3.7	(3.0)	4.4	4.1	$[4.1]^c$	4.2	4.3	6.4	$[7.5]^c$	7.2	8.4	(9.4)	9.0	9.1	8.4	(8.0)	6.6	6.6	(4.9)	4.9	3.8	3.0	3.5	(4.0)
7	3.9	3.8	3.8	3.5^F	3.3^F	3.3^F	(3.2)	4.8	6.8	7.9	7.4	8.8	(8.5)	8.0	$[8.4]^c$	7.5	(7.2)	4.8	5.0	(4.2)	3.8	2.9	2.9	2.9
8	3.5	3.5^F	3.8	4.1	4.5	4.1	3.2	6.2	6.8	7.9	8.8	9.7	9.2	9.0	8.4	8.5	7.1	6.4	6.0	4.8	3.7	3.1	3.0	2.9
9	4.0	3.9	4.1	4.0	3.9	3.6	3.6	5.5	(7.4)	8.0	(8.4)	8.5	9.5	9.4	9.0	7.4	6.9	5.5	5.2	4.3	$3.4'$	3.3^F	2.6^F	2.5^F
10	$(2.7)^F$	$(2.7)^F$	2.8^F	2.9	2.8^F	$(2.9)^F$	$(2.8)^F$	5.0	6.4	6.8	8.2	9.0	(8.8)	8.3	8.2	(7.9)	(7.4)	5.9	5.7	3.8^F	2.4^F	2.1^F	$(2.0)^F$	2.0^F
11	$(2.3)^F$	$(3.0)^F$	$(3.0)^F$	$(3.0)^F$	$(2.9)^F$	$(2.5)^F$	$(3.1)^F$	5.2	6.6	7.0	7.3	7.4	8.8	8.4	8.0	(8.0)	6.8	(6.0)	4.8	3.4	2.7	$2.6'$	2.2^F	2.2^F
12	2.5^F	$(2.6)^F$	$(3.0)^F$	3.4^F	3.4^F	2.8^F	$(2.7)^F$	4.9	6.6	6.4	(6.8)	7.6^H	8.4	7.4	7.4	7.2	(7.1)	5.7	4.5	3.7	3.1	2.7	2.6	2.5
13	2.6^F	2.5^F	3.1^F	3.1^F	3.1^F	2.8^F	2.7^F	(5.0)	6.8	(6.6)	(7.6)	8.5	9.6	7.9	8.5	8.8	8.8^K	$(10.2)^K$	$(8.8)^K$	4.4^K	4.5^K	$(3.2)^K$	$(3.1)^K$	$(2.9)^{FK}$
14	$(2.5)^{FK}$	$(3.0)^{FK}$	$(2.6)^K$	2.5^{FK}	$(1.9)^{FK}$	2.4^{FK}	2.4^{FK}	3.4^{FK}	4.4^K	4.1^K	4.2^K	4.1^K	4.3^K	4.4^K	5.0^K	5.0^K	5.0^K	4.5^K	3.9^K	2.9^K	2.2^{FK}	1.9^{FK}	1.8^K	1.8^{FK}
15	1.9^{FK}	2.1^{FK}	2.3^K	2.6^K	$(2.6)^K$	2.3^K	2.2	4.5	6.4	6.6^H	7.6	7.0	8.0	8.3	6.8	7.5	6.9	6.2	5.4	(3.3)	(3.0)	2.4	2.6^F	2.3^F
16	2.4^F	$(2.6)^F$	2.8^F	$(3.1)^F$	$(3.0)^F$	$(3.3)^F$	2.6^F	4.7	7.4	6.6	7.2	9.0	8.6	7.3	7.8	7.8	8.3	6.5	5.8	5.0	3.4^F	3.2^F	3.1^F	3.5^F
17	3.5^F	4.0	4.0^F	3.8^F	$(3.5)^F$	3.0^F	$(2.9)^F$	4.8^F	6.8	8.6	9.0	9.6	9.2	8.8	8.4	(8.0)	8.4	(6.4)	6.0	5.2	4.2	3.3	3.2	3.0
18	2.5^F	2.5^F	2.9	2.9	2.7	3.0	(3.0)	4.9	(7.4)	7.4	9.6	9.0	9.1	8.8	8.6	9.4	7.6	(6.6)	5.0	4.5^F	3.8	(3.3)	A	A
19	$(3.4)^F$	3.3^F	3.2^F	2.9^F	3.0^F	2.9	3.0^F	(5.2)	7.6	8.2	8.4	8.6	9.0	9.0	8.4	8.6	8.2	(7.2)	5.5	5.7	5.6	5.2	4.8	4.7
20	(3.8)	3.2^F	3.0^F	$(3.2)^F$	4.2^F	4.0^F	3.5^F	4.0	5.2	6.0	6.6	7.4	7.8	8.0	7.6	7.8	7.6	7.4	6.8	6.6	5.6	4.2	3.1^F	$(2.8)^F$
21	2.0^F	$(2.4)^F$	$(2.5)^F$	$(2.5)^F$	$(3.1)^F$	(2.9)	2.7	3.8	4.5	5.7	6.7	(7.6)	7.2	7.0	7.3	7.3	6.4	5.2	4.6	4.2	3.0	2.3	2.2	2.3
22	2.6	2.7	3.1^F	3.2^F	3.2^F	3.0	2.7^F	5.0	6.8	6.6	7.7	9.0	9.0	(7.8)	7.4	7.6	6.4	(5.8)	4.7	4.0	3.2	3.0	2.9	2.6
23	2.7	2.7	2.7	2.7	2.6	2.7	2.9	4.7	7.2	7.6	7.3	8.8	8.4	8.2	8.8	7.8	8.9	(8.6)	(7.8)	6.0	4.1	$(3.4)^F$	3.6^F	3.6^F
24	3.7	3.7^F	3.5^F	3.5^F	2.7^F	2.3^F	2.3^F	3.8	5.7	5.5	7.0	8.0	8.2	(8.4)	7.8	7.6	7.3	5.8	5.3	4.9	3.8^F	3.0	2.8^F	2.6
25	2.8^F	3.0^F	3.2^F	3.2^F	2.8^F	2.2^F	$(2.1)^F$	4.3^F	6.8	(7.4)	6.0^F	9.4	9.3	9.2	9.0	(9.8)	(9.0)	7.6	(6.4)	4.1	3.2	3.3	3.2^F	2.3^F
26	2.8^F	$(3.2)^F$	3.4^F	3.8	3.8^F	2.5^F	$(2.0)^F$	4.2^F	7.3	6.8	9.2	8.6	8.2	(7.9)	8.2	8.8	8.1	7.0	5.7	4.4	(3.1)	2.6^F	2.4	2.7^F
27	(2.8)	$(2.8)^F$	$(2.8)^F$	$(2.9)^F$	2.4^F	2.2^F	$(2.2)^F$	4.2^F	7.2	(7.0)	(7.6)	(7.4)	(8.5)	8.4	(8.2)	(8.4)	(7.4)	5.5	(5.4)	3.9	3.2	3.1	2.4	2.3
28	2.3^F	2.3^F	2.5^F	3.0^F	2.8^F	2.6^F	2.5	4.5	6.8	(7.8)	7.0	7.6	9.0	(9.0)	7.5	7.6	7.2	5.6	(5.4)	5.1	3.5	2.3^F	2.3^F	2.0
29	2.1^F	2.5^F	$(2.8)^F$	$(3.2)^F$	$(3.5)^F$	$(2.4)^F$	$(1.7)^F$	4.0	6.6	7.7	(8.2)	6.8	7.2	(8.6)	8.3	6.9	(6.0)	5.0	5.2	3.1^F	(3.3)	2.6^F	2.2	2.2^F
30	2.3	2.3^F	2.4^F	3.1^F	3.2	2.6^F	2.4	4.6	5.8	6.9	(6.2)	7.2	8.6	(8.2)	8.1	(6.8)	(6.0)	(5.1)	4.1	(3.9)	2.7	2.5^F	2.1^F	$(1.8)^F$
31	$(2.1)^F$	$(2.4)^F$	$(3.0)^F$	$(3.0)^F$	$(2.6)^F$	$(2.8)^F$	2.3^F	4.5	(6.1)	(6.6)	(7.2)	7.8	(9.0)	7.2	6.8	7.1	(6.6)	6.5	(4.4)	(3.4)	3.0	2.5	2.2	(2.1)
Sum																								
Median	2.8	3.0	3.1	3.2	3.2	2.9	2.7	4.8	6.8	7.0	7.6	8.5	8.5	8.3	8.2	7.8	7.2	6.2	5.2	4.3	3.4	3.0	2.7	2.6

TABLE 53
IONOSPHERE DATA-4

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TIME: 75° W MERIDIAN

Hourly values of h'F1 in km for December (Month) 1945

Records measured by: J.M.C. J.J.H.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										210	220	210	190H	220	230									
2										220	(200)	[210]A	210	220	220									
3											[210]A	210	210	210	230	220								
4											200	190	200	220	210									
5										A	210	200	210	230	230	230								
6										210	210	220	210	220	220									
7										A	[210]A	210	200	220	220	220								
8										230	200	(200)	220	220	220	220								
9										210	(220)	230	210	200	230									
10										210	230	210	230	230	(230)	230								
11										210	(230)	(230)	210	220	230	220								
12										220	210	220	230	200	230	[220]A								
13										(220)	210	220	220	210	220									
14										300K	270K	250K	(260)K	230K	270K	250K	260K							
15										A	250	240	230	220	240									
16										180	(230)	[230]A	240	220	220	A								
17										210	230	[220]A	[220]A	[230]A	240	A								
18											220	[220]A	[220]A	[220]A	A	A								
19										210	A	A	A	210	220									
20										210	(250)	220	220	250	230	C								
21										240	220H	220H	220	230	220									
22										A	190H	200	210H	220	210	220								
23											220	240	200H	220	250	220								
24										230	240	200	210	210	220									
25											200H	200	220	200H	240									
26												240	200	230										
27											200	210H	[210]A	220	210	220								
28										220	210	210	210	190H	220	210								
29											210	200	190	230	220									
30												210	200	230	230									
31											A	210	[210]A	[220]A	230	A								
Sum																								
Median										210	210	210	210	220	230	220								

TABLE 54
IONOSPHERE DATA-5

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of $f^{o}F_1$ in Mc for December 1945
(Month)

Records measured by: J.M.C.
J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L									
2										L	4.1	$[4.1]^{A}$	(4.1)	L	L									
3											A	L	L	L	L	L								
4											L	(3.8)	$[4.2]^{L}$	$[4.0]^{L}$	(3.8)	L								
5										L	L	L	L	L	L									
6										L	L	L	L	L	L									
7										A	A	(4.0)	L	L	L	L								
8										L	L	L	L	L	L	L								
9										L	L	L	L	L	L									
10										L	L	L	L	L	L									
11										L	L	L	L	L	L	L								
12										L	L	L	4.6	(4.0)	L	A								
13											L	3.8	$[4.2]^{L}$	$[4.1]^{L}$	(4.0)	L								
14										$(3.2)^{K}$	3.6^{K}	3.7^{K}	3.8^{K}	3.8^{K}	3.8^{K}	3.6^{K}	L^{K}							
15										(3.5)	L	L	$[4.3]^{L}$	(4.2)	L									
16										(3.4)	L	L	L	L	L	A								
17										(3.2)	L	A	L	L	L	A								
18												L	L	L	A	A								
19										L	A	A	A	L	L									
20										3.5	$[3.9]^{L}$	(4.2)	(4.2)	$[4.1]^{L}$	(4.0)	C								
21										(3.5)	4.0^{H}	4.0^{H}	4.1	$[4.0]^{L}$	L	L								
22										A	LH	4.4	LH	L	L	L								
23											L	L	LH	L	L	L								
24										L	L	$[4.1]^{L}$	4.1	L	L									
25											$[3.7]^{L}_{H}$	3.8	L	LH	L									
26													L	L										
27											(3.4)	$[3.9]^{L}_{H}$	(4.2)	L	L	L								
28										L	L	(4.0)	$[4.0]^{L}$	$(4.0)^{H}$	3.7	(2.8)								
29											L	(4.0)	4.0	L	L	L								
30												$[3.9]^{L}$	4.1	(4.1)	L									
31											L	4.7	A	L	L	A								
Sum																								
Median										(3.4)	(3.8)	(4.0)	(4.1)	(4.0)	(3.8)									

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 55
IONOSPHERE DATA-6

Hourly values of h'E in [redacted] km for December 1945
(Month)

Records measured by: J.M.C.
J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									110H	110	110	100	100	110H	110	100	110							
2									110	100H	100	100	100	110	120	100	100H							
3									120	110	120	100	100	110	110	110	100							
4									110	110	100	100	100	100H	100	100	100	100						
5									110H	110	110	110	110	110	110	110	100							
6									120	110	110	100	100	100	100	110	100	100						
7									120	110	100	100	100	110	110H	100	110	100						
8									110	110	110	110	110	110	110	110	110							
9									100	110	110	120	110	120	120	120	120							
10									120	100	110	110	110	110	120	110	120							
11									110	110	110	110	110	110	110	110	110H							
12									120	110	110	100H	110H	110	120	110	120H							
13									110	100	100	100	100	110	100	110	120K	K						
14									110K	110K	110K	110K	110K	110K	120K	110K	(120)K	K						
15									110	110H	120	120	120	110	110	120	120							
16									120	110	110	110	110	110	110	110	110							
17									110	110	110	120	120	120	120	100H	110							
18									140H	120H	110	100	120	110	110	100	100							
19									110	110	100	100	100	100	100	100	100	110						
20									110H	110	110	110	100	110	100	[110]C	120							
21									110	110	110	100	110	110	110	100	110							
22									110	110	100	100	100	100	100	100	100H							
23									100H	100	110	100	100	100	100	110	120							
24									110	110	110	100	100	100	100	100H	100							
25									110	110	110	110	100	100	100	100	100							
26									120	120	110	110	110	110	110	110	120							
27									120	110	110	100	110	100	100	110H	100							
28									110	110	100	110	100	100	110H	110H	110							
29									(130)	110	110	110	110	110	110	110	120							
30									110	110	120	120	120	120	110	110	110H							
31									130H	120	110	110	110	110	100	100	110							
Sum																								
Median									110	110	110	110	110	110	110	110	110							

TABLE 56
IONOSPHERE DATA – 7

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TIME: 75° W MERIDIAN

Hourly values of f°E in Mc for December 1945
(Month)

Records measured by: J.M.C. J.J.H.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									2.0H	(2.6)	2.9	3.1	3.1	3.1H	2.8	2.5	1.8							
2									[1.9]A	(2.5)H	[2.8]A	[3.0]A	(3.1)	3.0	2.9	2.5	1.8H							
3									2.1	2.6	[3.0]A	[3.1]A	3.2	(3.1)	2.8	2.5	A							
4									(1.8)	2.4	2.7	(3.0)	(3.1)	(3.0)H	2.8	A	A	A						
5									2.0H	A	A	(3.0)	(3.1)	(2.9)	[2.7]A	[2.5]A	A							
6									(2.2)	[2.5]A	2.8	(3.0)	(3.2)	[3.0]A	2.8	2.5	A	A						
7									A	A	[2.8]A	(3.0)	(3.1)	(3.0)	2.5H	(2.3)	1.8	(1.7)						
8									(1.8)	[2.5]A	2.9	(3.1)	(3.1)	(3.0)	2.9	2.4	A							
9									A	A	(3.0)	(3.0)	(3.2)	(3.0)	(2.9)	(2.5)	(1.9)							
10									[1.9]A	2.5	2.9	(3.0)	(3.1)	(3.0)	2.8	(2.5)	A							
11									[2.1]A	(2.5)	(2.8)	[2.9]A	3.2	3.0	[2.9]A	2.4	1.9H							
12									(1.9)	(2.5)	(3.0)	3.0H	3.0H	3.0	(2.9)	2.2	1.7H							
13									(2.0)	2.5	(2.7)	(3.0)	(3.2)	2.9	2.7	2.5	AK							
14									(2.0)K	2.4K	(2.5)K	(2.6)K	(2.9)K	(2.8)K	2.7K	2.4K	1.8K							
15									1.7H	2.3H	(2.8)	(3.0)	(3.2)	2.8	(2.8)	(2.4)	A							
16									A	(2.4)	(2.7)	[3.0]A	(3.1)	2.9	2.7	2.4	A							
17									1.8	(2.4)	(2.8)	[2.9]A	(2.9)	[2.8]A	2.7	2.3H	A							
18									(1.9)H	2.5H	2.8	3.0	[3.0]A	(2.9)	2.8	2.5	A							
19									A	A	A	A	A	A	(3.0)	A	A	A						
20									(1.9)H	2.3	A	A	A	A	A	C	A							
21									(2.0)	(2.5)	(2.8)	3.0	[3.0]A	3.0	2.8	2.3	(1.9)							
22									A	A	(2.7)	2.8	3.0	(2.9)	2.7	2.4	(1.8)H							
23									1.7H	(2.4)	2.7	(3.0)	3.0	(2.9)	2.8	(2.4)	(2.2)							
24									A	(2.3)	A	A	A	(3.0)	(2.7)	2.3H	A							
25									(2.0)	2.3	2.7	2.9	(3.1)	A	A	A	A							
26									A	[2.5]F	[2.7]A	3.0	(3.0)	(3.0)	(3.0)	(2.6)	A							
27									A	A	2.5	2.8	[3.0]A	2.9	(2.7)	2.3H	A							
28									(1.9)	2.2	[2.6]A	2.7	(2.8)	(2.7)	2.4H	2.1H	(2.0)							
29									(1.9)	(2.3)F	(2.7)	(2.8)	(2.9)	[2.8]A	[2.8]A	2.4	A							
30									A	2.3	(2.8)	(2.8)	(3.0)	(2.7)	(2.3)	[2.1]A	(2.0)H							
31									1.9H	A	A	A	A	A	A	A	(2.2)							
Sum																								
Median									(1.9)	(2.4)	(2.8)	(3.0)	(3.1)	(3.0)	2.8	2.4	(1.9)							

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 57
IONOSPHERE DATA-8

Hourly values of E_s in Mc / km for December 1945 (Month)

Records measured by: J.M.C. J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	24 100	24 100			23 100		23 120	3.7 100	5.0 110	3.7 130	33 150	64 110		3.2 150	36 100	24 100	3.8 100	24 100	22 100	2.8 110	2.7 110	23 150		
2								38 100	49 100	38 100	5.5 100	41 100				3.8 100	39 100	23 100	3.2 100					2.7 110
3	28 110	38 110	3.8 110	2.7 110	27 110	24 110	(36) 110	21 120	37 100	(2.7) 110	66 120	40 100	(64) 100			28 110	37 100	36 110	38 100	40 100	42 100	27 100	2.8 100	38 100
4	4.0 110	2.8 110	38 110	29 110	24 110	2.9 110	39 100	4.0 110	4.1 110	3.3 110	30 160	39 100		32 140	38 100	37 100	3.7 100	37 100	43 100	3.8 100	5.3 100	54 110	38 110	28 100
5	2.7 110	2.7 100	2.7 100			23 110	(3.7) 100	4.0 100	5.0 110	4.2 110	4.0 110	3.8 110	38 100	37 130	39 110	4.2 110	4.0 100	38 100	38 100	24 110	(2.1) 110	50 110	26 100	21 100
6	2.3 100	2.3 100				37 110			24 140	36 120		43 110	3.8 130	41 100	38 110	24 120	37 100	28 100	27 100	37 100	27 110	39 110	27 110	25 110
7	23 100	2.8 100	2.8 110	28 110	40 110	5.2 110	4.0 110	52 110	4.3 120	5.2 100	5.2 100	50 100	42 100	(49) 110	45 100	38 100	19 120	39 120	52 110	47 110	5.2 110	24 110	2.3 100	23 100
8	2.4 100	(4.1) 110	23 100	23 110	2.9 100	4.3 100	40 110	40 110	4.1 110	40 110	4.2 110	42 100	41 120	40 120	30 110	41 110	24 110	23 110	23 100	24 110	4.1 110	40 110	41 110	3.7 110
9	40 110	2.9 100	24 100	22 110	24 100	40 120	65 120	66 110	47 100	4.3 110	41 110	40 110	3.9 120	4.2 100	42 110	30 150	41 110	43 100	23 100	23 100	40 120	41 110	2.4 100	39 110
10	4.1 100	39 100	39 110	41 110	2.5 100	40 110	44 100	49 110	51 110	39 100	5.2 130	51 120	39 140	39 110	30 120	27 130	2.1 120		2.7 110	24 110	2.7 110	40 100	38 110	38 110
11	4.1 110			4.6 100	41 100	41 100		38 110	4.0 110	40 (110)	58 120	42 110	37 110	(37) 130	37 110				23 100	24 100	2.4 100	3.2 100	2.3 100	2.3 110
12	23 100	41 110	(38) 100	41 100	39 100	40 110	40 110	55 110	41 100	38 100	3.8 110	40 100	(38) 130	31 130	41 110	4.2 110	23 110		24 100	2.4 120	49 100	23 100	3.9 110	4.1 100
13	24 100	27 100	2.3 100	37 100	23 100	22 100	53 120	23 100	3.9 110	51 100	4.2 100		39 100	38 100	5.2 100	25 100	21 120							3.8 100 H
14	3.7 100 H	37 140	3.8 110	4.2 110	1.2 120		42 110	2.0 110	4.0 110	(3.8) 110	3.7 90		38 90			23 140	23 110	37 100	2.7 110				(2.4) 110	3.9 110
15						2.8 100	22 110	40 110	4.8 130	5.1 110	4.6 110	48 110	44 110	4.3 110	46 110	41 120	39 120	39 120	57 110	4.7 110	31 120	24 110	23 100	3.9 120
16	4.1 110	(3.7) 110	42 110	25 110	48 110	2.5 120	42 120	44 110	43 110	43 110	4.7 110	5.0 110	53 110	44 120	4.0 110	48 110	41 110		24 110	23 120				
17	38 100	38 110			66 100	5.5 100	39 110	4.0 110	3.8 110	38 130	3.8 120	53 120	40 110	36 120	3.8 130	4.2 120	40 110	50 110	6.3 110	32 110	44 110	5.3 110	(2.3) 120	38 110
18						40 100		24 120	2.7 160	3.1 120	3.9 110	40 130	40 130	38 130	52 120	52 100	38 100	4.2 110	3.7 110	4.4 110	40 110	73 100	(7.8) 100	7.3 100
19	55 100	37 100	23 110				(2.3) 100	38 110	4.2 100	53 110	6.2 100	6.5 100	6.2 100	50 100	(3.8) 100	6.6 100	68 100	2.3 110	2.4 100	46 110	52 100	48 100	29 110	2.4 110
20	24 110	30 110	27 120		4.3 110	3.0 110	2.9 110	4.3 110	75 110	52 110	39 110	4.2 100	50 100	43 100	4.2 110		24 100	(2.3) 110	(2.3) 110		28 120	2.4 120	2.4 120	2.3 120
21			20 130	51 110	3.8 110	(2.4) 120	41 120	54 100	38 100	40 100	41 100	39 110	5.0 100	4.2 120	38 120	(2.5) 110	38 100	(2.2) 100		23 100	4.3 110	1.8 110	2.8 110	2.8 110
22	22 100	(3.7) 100			3.9 100	36 150	24 110	40 100	40 110	51 100	39 130	3.8 100		42 110	3.8 100	3.9 100	39 100	(2.1) 110			2.4 110	2.3 110	24 120	2.3 110
23		24 100	2.8 110	27 110	39 100	39 110	3.5 110	39 100	4.1 100	39 100	3.8 100	39 100	3.8 100	37 100	3.8 100	3.7 120	3.5 120	(1.7) 110		(2.3) 110	1.7 120	3.8 100	3.8 100	4.0 100
24	38 110		2.7 100	3.8 100	3.2 100	52 100	62 100	2.4 110	37 110	23 110	4.2 110	4.0 100	3.9 100	(3.8) 100	38 100		4.0 100	24 110				3.9 110	2.3 110	3.8 110
25	2.7 110	38 110	41 110	1.7 110	1.2 110	(3.8) 130		3.9 110	2.2 110	2.5 130			(4.7) 100	4.1 100	3.8 100	4.3 100	3.7 100	1.9 100	1.7 100					
26					2.4 110	40 120	4.5 110	57 120	3.9 120	3.9 110	(3.7) 110	44 110	66 100	4.7 110	4.5 110	(4.3) 110	4.6 110	4.5 110	4.2 110	4.1 110	42 110	4.6 110	2.5 110	4.1 110
27	51 110	74 110	5.5 110	4.9 110	41 110	25 110	82 120	64 120 H	4.8 110	5.3 110		39 110	51 100	4.3 110	38 100	2.6 110	3.8 100	(3.8) 110				2.8 110	4.3 110	5.2 110
28	38 110				3.8 100	(1.7) 110	(2.1) 110	(1.7) 110	2.3 110	38 100	38 100	(3.7) 110	3.8 100		3.8 100	2.4 120	2.3 130	1.8 110	1.2 130		2.3 110	4.2 110	1.7 110	53 100
29	5.1 100		29 110	22 110	2.3 100	2.2 110	4.0 120		38 120	3.8 110	3.8 110	38 110	3.8 100	3.8 110	49 110	3.7 110	2.3 110	23 110			2.2 120		2.3 110	2.9 110
30	3.2 110		(1.2) 120		1.5 110	38 110	38 110	52 110 H	5.0 110	4.4 110			37 130	(5.0) 110	4.0 110	4.9 110	5.4 110	5.3 100	4.2 100	5.3 100	5.3 100	4.0 100	4.1 100	4.0 100
31	3.8 100								2.9 130	55 110	84 110	9.4 110	8.4 110	5.3 110	66 100	5.2 100	4.0 100	4.0 100	28 100	5.3 110	44 110		5.3 110	43 110
Sum																								
Median	2.7	2.7	2.3	2.2	2.4	30	3.8	4.0	4.1	3.9	3.9	4.0	3.9	3.9	3.8	3.7	3.8	2.4	2.4	2.4	2.7	2.9	2.4	3.8

Washington, D. C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 58
IONOSPHERE DATA-9

TIME: 75°W MERIDIAN

Hourly values of F2-M1500 for December 1945 (Month)

Records measured by: J.M.C. J.J.H.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(2.0)F	(2.1)F	(2.1)F	(2.0)F	2.2F	(2.3)F	2.2	2.3	2.4	2.6	2.5	2.3	2.3	2.3	2.3	2.3	2.3	(2.4)	2.3	2.3	2.3	2.2	2.0	(2.0)F
2	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.3	2.5	(2.6)	2.4	(2.2)	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.1	2.0	2.0
3	2.0	2.0F	2.0F	2.0	2.1	2.3	2.4	2.3	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.0	2.0
4	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.5	(2.7)	2.7	(2.4)	(2.5)	(2.2)H	2.5	2.3	2.3	2.3	2.4	2.2	2.1	A	2.2	2.0
5	1.9	2.0	1.9	2.1	2.2F	2.4	2.3	(2.1)F	2.6	2.5	2.4	2.3	2.4	2.4	2.1	2.2	2.4	(2.5)	(2.3)	2.2	2.1	2.0	1.9	2.2
6	(2.3)F	(2.4)	(2.0)	C	C	2.0	2.3	2.3	2.4	2.4	2.1	2.3	2.2	2.4	2.4	(2.3)	2.5	(2.4)	2.3	(2.2)	2.3	2.0	1.9	2.0
7	2.0F	2.1	2.0	2.1	2.1	1.9	2.3F	(2.4)F	2.3	2.5	2.6	2.5	2.4	2.5	2.3	2.5	(2.5)	2.5	2.1	2.1	2.2	2.0	(2.0)	(2.1)
8	1.9	1.9	2.0	2.0	2.0	2.3	2.3	2.3	2.6	2.4	2.5	2.3	2.2	2.2	(2.4)	2.1	2.4	2.2	2.2	2.3	2.3	(2.1)	1.9	(2.0)
9	2.1	2.0F	2.1	2.2	2.2	2.1	2.0	2.3	2.4	2.4	2.3	2.3	(2.4)	2.2	2.3	2.4	2.4	2.4	2.2	2.4	2.3	2.0F	(2.1)F	(2.0)F
10	(1.9)F	(1.8)F	(1.8)F	(2.1)F	(2.1)F	(2.1)F	(2.1)F	(2.3)F	2.6	2.3	2.4	2.3	2.3	2.3	2.5	(2.5)	2.4	(2.5)	2.3	2.3	2.5F	(2.4)F	(2.1)F	(2.2)F
11	(2.0)F	(1.9)F	(2.0)F	(2.1)F	(2.0)F	(2.3)F	(2.1)F	(2.3)F	2.6	(2.5)	2.5	(2.4)	2.2	2.3	2.3	2.3	2.5	2.5	2.4	2.4	2.1	(2.1)	(2.1)F	(2.0)F
12	(2.0)F	(2.2)F	(2.2)F	(2.1)F	(2.3)F	(2.4)F	2.2	(2.3)F	2.4	2.6	2.6	(2.4)	2.4	2.5	2.4	2.3	(2.6)	(2.5)	2.4	(2.2)	2.3F	2.2	2.0	2.0F
13	(2.1)F	2.0F	(2.0)F	(2.0)F	2.1F	2.2F	(2.2)F	2.3F	2.5	2.6	2.5	2.2	2.2	2.3	2.2	2.2	2.2K	2.1K	(2.2)K	2.1K	1.8K	1.7K	(1.8)K	(2.0)FK
14	(1.7)FK	(1.7)FK	(1.7)FK	(1.7)FK	(1.9)FK	(2.0)FK	(2.1)FK	(1.9)FK	2.2K	(1.9)K	1.7K	1.8K	1.6K	(1.6)K	1.8K	2.0K	2.0K	2.1K	2.1K	2.2FK	(2.1)K	(2.1)FK	2.1K	1.9FK
15	2.0FK	(1.9)FK	1.9FK	2.0K	2.0K	2.0K	2.1K	(2.0)	2.4	2.5	(2.5)	(2.3)	2.1	[illegible]	[illegible]	(2.2)	2.3	2.1	2.1	2.2	(2.0)	(2.0)F	(2.2)	(1.8)F
16	(1.9)F	(1.8)F	(2.0)F	(2.0)F	(2.1)F	(2.3)F	(2.5)F	(2.2)F	2.5	2.5	2.5	2.4	2.2	2.5	[illegible]	2.1	2.2	2.3	(2.2)	2.3	2.2	(1.9)	1.9F	1.8F
17	1.9F	1.8F	1.9F	2.0F	(2.1)F	2.0F	2.1F	(2.2)F	(2.3)	(2.4)	2.4	2.2	2.3	2.3	(2.5)	2.2	(2.3)	2.4	(2.4)	(2.3)	2.4	A	2.2	2.1
18	2.2F	(2.2)F	2.0F	2.0	(2.2)F	2.0F	(2.1)	(2.3)F	2.3	(2.5)	(2.2)F	2.5	2.3	2.2	(2.2)	2.2	2.3	(2.4)	2.3	2.1	2.3	2.1	A	A
19	A	2.2F	(2.0)F	(2.0)F	(2.0)F	(2.0)F	2.0	(2.2)F	2.4	2.7	(2.3)	2.4	2.3	2.3	2.3	2.3	2.3	(2.1)	(1.9)	1.7	1.9	1.9	2.0	1.9
20	(2.2)	(2.1)F	(1.8)F	(1.8)F	(1.8)F	(1.8)F	1.9	2.2F	2.2	2.2	2.2	2.1	2.0	2.2	2.1	2.1	2.1	2.0	1.8	1.9	(2.0)	(2.0)	(1.8)F	(2.0)
21	(1.8)F	(1.8)F	(1.8)F	(1.8)F	(1.9)F	J	1.7	1.9	2.2	2.1	2.0	2.3	2.3	2.3	2.3	2.4	2.4	[illegible]	2.3	2.2	2.3	2.1	1.9	2.0
22	2.1	2.0	(2.1)F	2.1F	2.1F	2.1F	(2.0)	(2.1)F	2.4	2.5	2.3	2.4	2.3	2.4	(2.2)	2.2	2.5	[illegible]	2.3	2.0	2.1	1.9	2.0	2.0
23	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.1	(2.3)	2.4	(2.5)	(2.1)	2.4	2.2	2.1	2.3	2.1	(2.3)	2.3	2.3	2.5	2.0	1.8	2.0F
24	1.9	1.9	2.0	2.0F	(2.0)F	(1.9)F	(2.0)F	(1.9)F	2.0	(2.3)	(2.1)	2.2	2.4	2.2	(2.5)	2.3	2.3	2.2	2.2	2.3	2.3	2.3F	2.2	(2.0)
25	2.0	(2.0)F	(2.1)F	2.2F	(2.1)F	(2.3)F	(2.1)F	(2.2)F	2.5	(2.6)	(2.3)	2.1	2.2	2.1	2.0	(2.1)	2.3	2.4	(2.2)	2.5	2.1	(1.8)F	1.8	(2.0)F
26	(2.0)F	(2.1)F	(2.0)F	2.1	2.2	(2.3)F	(2.2)F	(2.0)F	(2.2)F	(2.5)	2.4	2.5	2.5	2.2	2.2	2.1	2.2	2.2	(2.1)F	2.4	(2.4)F	(2.1)	(2.0)	(1.9)
27	(2.0)F	A	(2.1)F	(2.2)F	(2.0)F	(2.3)F	(2.2)F	(2.2)F	(2.4)	(2.6)	2.5	(2.4)F	(2.4)	(2.3)	2.3	(2.2)	(2.3)	2.2	2.2	2.2	2.3	2.1	(2.0)	2.1
28	2.1	(2.0)F	(2.1)F	(2.1)F	(2.3)F	(2.2)F	2.1	(2.2)F	2.5	(2.5)	2.4	2.5	2.3	2.4	(2.4)	2.4	(2.3)	(2.4)	2.0	2.2	2.5	2.6	(2.2)F	2.2F
29	(2.3)F	2.2F	(2.1)F	(2.1)F	(2.2)F	(2.3)F	(2.1)F	(1.9)F	2.3	2.6	2.6	(2.7)	2.5	2.3	(2.5)	2.5	2.6	2.3	2.3	2.5F	(2.2)	2.4	2.1	(2.0)F
30	2.1	2.0	2.1F	(2.1)F	(2.2)F	2.4	(2.1)F	2.2F	(2.4)	2.5	2.6	(2.7)	2.3	2.4	(2.4)	2.5	2.4	2.5	2.5	2.5	A	2.4F	(2.3)F	(2.1)F
31	A	(2.1)F	(2.2)F	(2.1)F	(2.1)F	(2.3)F	2.2F	(2.2)	2.6	2.5	(2.5)	(2.3)	(2.4)	(2.3)H	2.4	2.5	2.5	(2.5)	(2.5)	2.3	2.3	2.1	(1.9)	A
Sum																								
Median	2.0	2.0	(2.0)	2.0	(2.1)	2.2	2.1	(2.2)	2.4	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.0	2.0

TABLE 59
IONOSPHERE DATA-10

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

Hourly values of F2-M3000 for December (Month) 1945

Records measured by: J.M.C. J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(3.0)F	(3.1)F	(3.1)F	(3.0)F	3.2F	(3.3)F	3.2	3.3	3.5	3.6	3.5	3.3	3.4	3.3	3.3	3.3	3.3	(3.4)	3.3	3.4	3.3	3.2	3.0	(3.0)F
2	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.4	3.5	(3.6)	3.5	(3.2)	3.5	3.3	3.3	3.3	3.3	3.3	3.2	3.3	3.3	3.1	3.0	3.0
3	3.0	3.0F	3.0F	3.0	3.1	3.3	3.4	3.3	3.6	3.5	3.5	3.4	3.3	3.3	3.3	3.3	3.4	3.4	3.3	3.2	3.2	3.2	3.0	3.0
4	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.4	3.5	(3.7)	3.8	(3.4)	(3.5)	(3.2)H	3.5	3.3	3.3	3.4	3.4	3.2	3.1	A	3.2	2.9
5	2.9	2.9	2.9	3.1	3.2F	3.5	3.3	(3.1)F	3.6	3.5	3.4	3.3	3.4	3.4	3.1	3.2	3.4	(3.5)	(3.3)	3.2	3.1	3.0	2.8	3.2
6	(3.3)F	(3.4)	(3.0)	C	C	3.0	3.3	3.4	3.4	3.4	3.1	3.3	3.2	3.4	3.4	(3.3)	3.5	(3.4)	3.3	(3.2)	3.3	3.0	2.9	3.0
7	3.0F	3.1	3.0	3.1	3.1	2.9	3.3F	(3.4)F	3.3	3.5	3.6	3.5	3.4	3.5	3.3	3.5	(3.5)	3.5	3.1	3.1	3.2	3.0	(3.0)	(3.1)
8	2.8	2.9	3.0	3.0	3.0	3.3	3.3	3.3	3.6	3.4	3.5	3.3	3.2	3.2	(3.4)	3.1	3.5	3.2	3.2	3.3	3.3	(3.1)	2.9	(3.0)
9	3.1	3.0F	3.1	3.2	3.2	3.1	3.0	3.3	3.4	3.4	3.3	3.3	(3.4)	3.2	3.3	3.5	3.4	3.5	3.2	3.4	3.3	3.0F	(3.1)F	(3.0)F
10	(2.8)F	(2.8)F	(2.8)F	(3.1)F	(3.1)F	(3.2)F	(3.1)F	(3.3)F	3.6	3.3	3.4	3.3	3.3	3.3	3.5	(3.6)	3.4	(3.5)	3.3	3.3	3.6F	(3.4)F	(3.1)F	(3.2)F
11	(3.0)F	(2.9)F	(3.0)F	(3.1)F	(3.0)F	(3.3)F	(3.1)F	(3.3)F	3.6	(3.6)	3.5	(3.4)	3.2	3.3	3.3	3.3	3.5	3.5	3.4	3.4	3.1	(3.1)	(3.1)F	(3.0)F
12	(3.0)F	(3.2)F	(3.2)F	(3.1)F	(3.3)F	(3.4)F	3.2	(3.3)F	3.4	3.6	3.7	(3.4)	3.4	3.5	3.5	3.3	(3.7)	(3.5)	3.4	(3.2)	3.3F	3.2	3.0	3.0F
13	(3.1)F	3.0F	(3.0)F	(3.0)F	3.1F	3.3F	(3.2)F	3.3F	3.5	3.6	3.5	3.2	3.3	3.3	3.2	3.2	3.2K	3.1K	(3.2)K	3.1K	2.8K	2.7K	(2.8)K	(3.0)FK
14	(2.7)FK	(2.7)FK	(2.7)FK	(2.6)FK	(2.9)FK	(3.0)FK	(3.1)FK	(2.9)FK	3.2K	(2.9)K	2.6K	2.7K	2.4K	(2.6)K	2.7K	2.9K	3.0K	3.1K	3.1K	3.3FK	(3.1)K	(3.1)FK	3.1K	2.9FK
15	(3.0)FK	(2.9)FK	2.9FK	3.0K	3.0K	3.0K	3.1K	(3.0)	3.4	3.5	(3.5)	(3.3)	3.1	3.2	(3.4)	(3.2)	3.3	3.1	3.1	3.2	(3.0)	(2.9)F	(3.2)	(2.8)F
16	(2.9)F	(2.8)F	(3.0)F	(3.0)F	(3.1)F	(3.3)F	(3.5)F	(3.2)F	3.5	3.5	3.5	3.4	3.2	3.5	3.5	3.1	3.2	3.3	(3.2)	3.3	3.2	(2.9)	2.9F	2.8F
17	2.9F	2.8F	2.8F	3.0F	(3.1)F	3.0F	3.1F	(3.2)F	(3.3)	(3.4)	3.4	3.2	3.3	3.3	(3.6)	3.2	(3.3)	3.4	(3.4)	(3.3)	3.4	A	3.2	3.1
18	3.2F	(3.2)F	3.0F	3.0	(3.2)F	3.0F	(3.1)	(3.3)F	3.3	(3.5)	(3.2)F	3.4	3.3	3.2	(3.2)	3.2	3.3	(3.4)	3.3	3.1	3.3	3.1	A	A
19	A	3.2F	(3.0)F	(3.0)F	(3.0)F	(3.0)F	3.0	(3.2)F	3.4	3.7	(3.3)	3.4	3.3	3.3	3.3	3.3	3.3	(3.1)	(2.9)	2.6	2.9	2.9	3.0	2.9
20	(3.2)	(3.1)F	(2.8)F	(2.7)F	(2.7)F	(2.7)F	2.9	3.2F	3.2	3.2	3.2	3.1	3.0	3.2	3.1	3.1	3.1	3.0	2.8	2.9	(3.0)	(3.0)	(2.8)F	(3.0)
21	(2.7)F	(2.7)F	(2.7)F	(2.8)F	(2.8)F	J	2.6	2.9	3.2	3.1	3.0	3.3	3.3	3.3	3.3	3.4	3.4	3.3	3.3	3.2	3.3	3.1	2.9	3.0
22	3.0	3.0	(3.1)F	3.1F	3.1F	3.1F	(3.0)	(3.1)F	3.4	3.5	3.3	3.4	3.4	3.4	(3.2)	3.2	3.5	3.3	3.3	3.0	3.1	2.9	3.1	3.0
23	3.0	3.0	3.1	3.0	3.1	3.1	3.0	3.1	(3.3)	3.5	(3.5)	(3.1)	3.4	3.2	3.1	3.3	3.1	(3.3)	3.3	3.3	3.5	3.0	2.8	3.0F
24	2.9	2.9	3.0	3.0F	(3.0)F	(2.9)F	(3.0)F	(2.9)F	3.0	(3.3)	(3.1)	3.2	3.5	3.2	(3.5)	3.3	3.3	3.2	3.2	3.3	3.4	3.3F	3.2	(3.0)
25	3.0	(3.0)F	(3.1)F	3.2F	(3.1)F	(3.3)F	(3.1)F	(3.2)F	3.5	(3.6)	(3.3)	3.1	3.2	3.2	3.0	(3.1)	3.3	3.4	(3.2)	3.5	3.2	(2.8)F	2.8	(3.0)F
26	(3.0)F	(3.1)F	(2.9)F	3.1	3.2	(3.3)F	(3.2)F	(3.0)F	(3.2)F	(3.6)	3.3	3.5	3.5	3.2	3.2	3.1	3.2	3.2	(3.1)F	3.4	(3.5)F	(3.1)	(3.0)	(2.9)
27	(3.0)F	A	(3.1)F	(3.2)F	(3.0)F	(3.3)F	(3.2)F	(3.2)F	(3.4)	(3.6)	3.5	(3.5)F	(3.4)	(3.3)	3.3	(3.2)	(3.3)	3.2	3.2	3.2	3.3	3.1	(3.0)	3.1
28	3.1	(3.0)F	(3.1)F	(3.1)F	(3.3)F	(3.3)F	3.1	(3.3)F	3.5	(3.5)	3.5	3.5	3.3	3.4	(3.4)	3.4	(3.3)	(3.4)	3.0	3.2	3.5	3.6	(3.2)F	3.2F
29	(3.2)F	3.2F	(3.1)F	(3.1)F	(3.2)F	(3.3)F	(3.1)F	(2.9)F	3.3	3.6	3.6	(3.8)	3.5	3.3	(3.6)	3.6	3.6	3.3	3.3	3.5F	(3.2)	3.4	3.1	(3.0)F
30	3.1	3.0	3.1F	(3.1)F	(3.2)F	3.4	(3.1)F	3.2F	(3.4)	3.6	3.7	(3.7)	3.3	3.4	(3.5)	3.5	3.4	3.5	3.5	3.6	A	3.4F	(3.3)F	(3.1)F
31	A	(3.1)F	(3.2)F	(3.1)F	(3.1)F	(3.3)F	(3.2)F	(3.2)	3.6	3.5	(3.5)	(3.3)	(3.4)	(3.3)H	3.4	3.5	3.5	(3.5)	(3.5)	3.3	3.3	3.1	(2.9)	A
Sum																								
Median	3.0	3.0	(3.0)	3.0	(3.1)	3.2	3.1	(3.2)	3.4	3.5	3.5	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.1	3.0	3.0

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 60
IONOSPHERE DATA – II

Hourly values of F1-M3000 for December (Month) 1945

Records measured by: J.M.C. J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L									
2										L	(4.0)	A	(4.1)	L	L									
3											A	L	L	L	L	L								
4											L	(4.1)	L	L	(3.8)	L								
5										LA	L	L	L	L	L									
6										L	L	L	L	L	L									
7										A	A	(3.9)	L	L	L	L								
8										L	L	L	L	L	L	L								
9										L	L	L	L	L	L									
10										L	L	L	L	L	L									
11										L	L	L	L	L	L	L								
12										L	L	L	(3.7)	(3.7)	L	A								
13											L	4.1	L	L	L	L								
14										(3.4)^K	3.4^K	3.3^K	3.4^K	3.5^K	3.4^K	3.5^K	L^K							
15										A	L	L	L	(3.9)	L									
16										(4.2)	L	LA	L	L	L	A								
17										(4.0)	L	A	L	LA	L	A								
18												L	LA	LA	A	A								
19										L	A	A	A	L	L									
20										(3.8)	L	(3.7)	(3.7)	L	(3.8)	C								
21										(3.6)	(3.6)^H	(3.5)^H	(3.8)	L	L	L								
22										A	L	3.8	L	L	L	L								
23											L	L	L	L	L	L								
24										L	L	L	3.9	L	L									
25											L	(4.0)	L	L	L									
26													L	L										
27											(3.9)	L	LA	L	L	L								
28										L	L	L	L	(3.9)^H	L	(4.0)								
29											L	(4.0)	(3.8)	L	L	L								
30												L	3.8	(3.8)	L									
31											LA	3.7	A	LA	L	A								
Sum																								
Median										(3.8)	L	(3.8)	(3.8)	(3.8)	L									

Washington, D.C. Ionosphere Station
(Location)

National Bureau Of Standards
(Institution)

TABLE 61
IONOSPHERE DATA-12

Hourly values of E-M1500 for December 1945
(Month)

Records measured by: J.M.C.
J.J.H.

TIME: 75° W MERIDIAN

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									(4.4)^{H}	(4.2)	4.2	4.2	4.2	(4.2)^{H}	4.3	4.1	4.3							
2									A	(4.2)^{H}	A	A	(4.1)	4.2	(4.0)	4.4	(4.2)^{H}							
3									4.2	4.1	A	A	(4.2)	(4.2)	4.3	4.3	A							
4									(4.3)	4.2	4.3	(4.1)	(4.1)	(4.3)^{H}	(4.2)	A	A	A						
5									(4.0)^{A}	A	A	(4.4)	(4.1)	(4.2)	A	A	A							
6									(4.3)	A	4.3	(4.1)	(4.1)	A	4.4	(3.9)	A	A						
7									A	A	A	(4.1)	(4.0)	(4.2)	(4.6)^{H}	(4.4)	4.3	(4.6)						
8									(4.5)	A	(3.9)	(4.0)	(4.0)	(4.0)	(4.0)	(4.0)	A							
9									A	A	(4.1)	(4.0)	(4.0)	(4.0)	(3.9)	(4.0)	(4.0)							
10									A	(4.0)	(4.0)	(4.2)	(4.0)	(4.1)	(4.0)	(4.1)	A							
11									A	(4.1)	(4.2)	A	4.2	4.2	A	4.5	(4.4)^{H}							
12									(4.0)	(4.3)	(4.0)	(4.3)^{H}	(4.2)^{H}	4.3	(4.1)	(4.5)	(4.5)^{H}							
13									(4.0)	4.3	(4.4)	(4.1)	(4.1)	4.3	4.2	4.1	A^{K}	K						
14									(4.3)^{K}	(3.9)^{K}	(4.2)^{K}	(4.2)^{K}	(3.9)^{K}	(4.1)^{K}	4.2^{K}	4.3^{K}	(4.2)^{K}	K						
15									(4.4)^{H}	(4.1)^{H}	(3.6)	(3.9)	(3.7)	4.2	(3.8)	(4.0)	A							
16									A	(3.8)	A	A	(4.0)	4.2	4.3	4.2	A							
17									(4.2)	(3.9)	(4.1)	A	(4.0)	A	4.3	(4.3)^{H}	A							
18									(3.8)^{H}	(4.2)^{H}	4.3	(4.0)	A	(4.2)	(4.1)	4.3	A							
19									A	A	A	A	A	A	(4.3)	A	A	A						
20									(4.3)^{H}	(4.4)	A	A	A	A	A	C	A							
21									(4.0)	(4.1)	(4.1)	4.5	A	(4.0)	4.1	4.1	(4.1)							
22									A	A	(4.3)	4.2	(4.0)	(4.1)	4.2	4.0	(4.1)^{H}							
23									(4.4)^{H}	(4.3)	4.3	(4.0)	4.1	(4.0)	(4.2)	(4.2)	(3.8)							
24									A	(4.2)	A	A	A	(4.1)	(4.3)	(4.3)^{H}	A							
25									(3.8)	4.2	4.4	4.1	(4.2)	A	A	A	A							
26									A	A	A	(4.0)	(4.2)	(4.2)	(4.0)	(4.2)	A							
27									A	A	4.2	4.1	A	(4.3)	(4.3)	(4.5)^{H}	A							
28									(3.7)	(4.0)	A	4.3	4.4	(4.5)	(4.5)^{H}	(4.4)^{H}	(4.1)							
29									(3.7)	(4.1)^{F}	A	(4.3)	(4.3)	A	A	4.2	A							
30									A	4.2	(4.2)	(4.3)	(4.2)	(4.4)	(4.6)	A	(4.1)^{H}							
31									(4.0)^{H}	A	A	A	A	A	A	A	(3.8)							
Sum																								
Median									(4.2)	(4.2)	(4.2)	(4.1)	(4.1)	(4.2)	(4.2)	(4.2)	(4.1)							

Table 62

Ionospheric Storminess, December 1945

Day	Ionospheric Character* 00-12 GCT	Ionospheric Character* 12-24 GCT	Principal Storms Beginning GCT	Principal Storms End GCT	Geomagnetic Character** 00-12 GCT	Geomagnetic Character** 12-24 GCT
December						
1	2	1			0	0
2	2	1			1	1
3	2	1			0	0
4	1	2			0	0
5	2	3			1	2
6	1	1			2	3
7	1	2			2	1
8	1	1			3	2
9	1	1			2	2
10	3	1			2	1
11	2	2			1	0
12	2	2			0	1
13	2	1	2100	——†	0	4
14	4	7	——	——	6	3
15	4	3	——	1130	2	2
16	2	1			1	2
17	1	0			3	2
18	1	0			1	1
19	1	1			1	3
20	1	3			4	3
21	3	3			4	1
22	2	1			0	0
23	2	1			0	3
24	1	2			3	2
25	2	2			2	4
26	2	1			4	3
27	2	1			3	3
28	2	1			3	3
29	2	2			3	2
30	2	1			2	1
31	2	2			2	2

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D.C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of American magnetic K-figure, determined by a number of observatories, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

†Dashes indicate continuing storm.

Table 63

Provisional Radio Propagation Quality Figures
November 1945
Compared with IRPL and ISIB Warnings and IRPL A-Zone Forecasts.

Day	North Atlantic Quality Figure 01-12 GCT	North Atlantic Quality Figure 13-24 GCT	North Atlantic IRPL Warning 01-12 GCT	North Atlantic IRPL Warning 13-24 GCT	North Atlantic ISIB Warning 01-12 GCT	North Atlantic ISIB Warning 13-24 GCT	North Atlantic A-Zone Forecast	North Atlantic Geomagnetic K_A 01-12 GCT	North Atlantic Geomagnetic K_A 13-24 GCT	North Pacific Quality Figure 01-12 GCT	North Pacific Quality Figure 13-24 GCT	North Pacific IRPL Warning 01-12 GCT	North Pacific IRPL Warning 13-24 GCT	North Pacific A-Zone Forecast	North Pacific Geomagnetic K_A 01-12 GCT	North Pacific Geomagnetic K_A 13-24 GCT
1	6	7					5	1	0	6	7			5	1	0
2	6	7					5	0	1	6	6			5	0	1
3	6	7					5	1	0	7	7			5	1	0
4	6	7					6	0	2	6	6			6	0	2
5	6	7					6	2	1	6	6			6	2	1
6	6	7					6	0	0	6	6			6	0	0
7	6	7					6	0	1	6	7			6	0	1
8	6	7					5	0	2	6	6			5	0	2
9	(4)	5	X	X		X	5	4	3	5	7	X	X	5	4	3
10	(3)	5	X	X	X	X	6	3	1	6	6	X	X	6	3	1
11	(4)	(4)	X	X	X	X	6	3	2	(4)	6	X	X	6	3	2
12	(4)	5	X	X			5	3	2	(4)	7	X	X	5	3	2
13	(4)	5	X	X			6	2	2	5	6	X	X	6	2	2
14	5	5	X	X	X	X	6	2	1	5	6	X	X	6	2	1
15	5	6	X	X			5	2	2	5	7	X	X	5	2	2
16	6	6					6	2	2	5	6			6	2	2
17	5	6			X	X	6	2	1	6	7			6	2	1
18	6	7					5	1	1	6	6			5	1	1
19	6	7					5	1	1	7	6			5	1	1
20	5	7					(4)	1	0	6	6			(4)	1	0
21	6	7			X		(4)	0	1	7	6			(4)	0	1
22	6	7					(4)	1	1	6	6			(4)	1	1
23	6	7					5	1	1	6	6			5	1	1
24	7	7					5	1	0	7	7			5	1	0
25	6	7					6	0	1	7	5			6	0	1
26	6	7					6	0	1	7	6			6	0	1
27	6	7					6	1	1	7	7			6	1	1
28	6	7					6	1	1	6	6			6	1	1
29	6	6					6	2	2	6	6			6	2	2
30	6	7					7	1	0	6	6			7	1	0
Score:																
H			5		2		0					2		0		
M			0		1		5					0		2		
G			23		22		22					23		25		
(S)			2		2		1					4		0		
S			0		1		2					1		3		

Quality Figure and Forecast Scale:
- 1 = Useless
- 2 = Very poor
- 3 = Poor
- 4 = Poor to fair
- 5 = Fair
- 6 = Fair to good
- 7 = Good
- 8 = Very good
- 9 = Excellent

Symbols
- X = Warning given.
- H = Quality 4 or worse on day or half-day of warning.
- M = Quality 4 or worse on day or half-day of no warning.
- G = Quality 5 or better on day of no warning.
- (S) = Quality 5 on day of warning.
- S = Quality 6 or better on day of warning.
- ( ) = Quality or forecast 4 or worse (disturbed)

Geomagnetic K_A on the standard scale of 0 to 9, 9 representing the greatest disturbance.

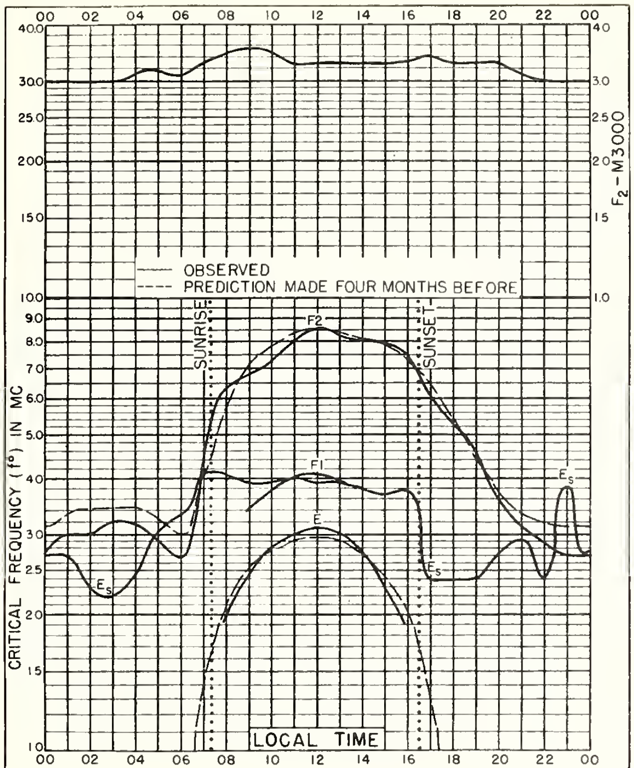


Fig. 1. WASHINGTON, D.C. 39.0°N, 77.5°W DECEMBER, 1945.

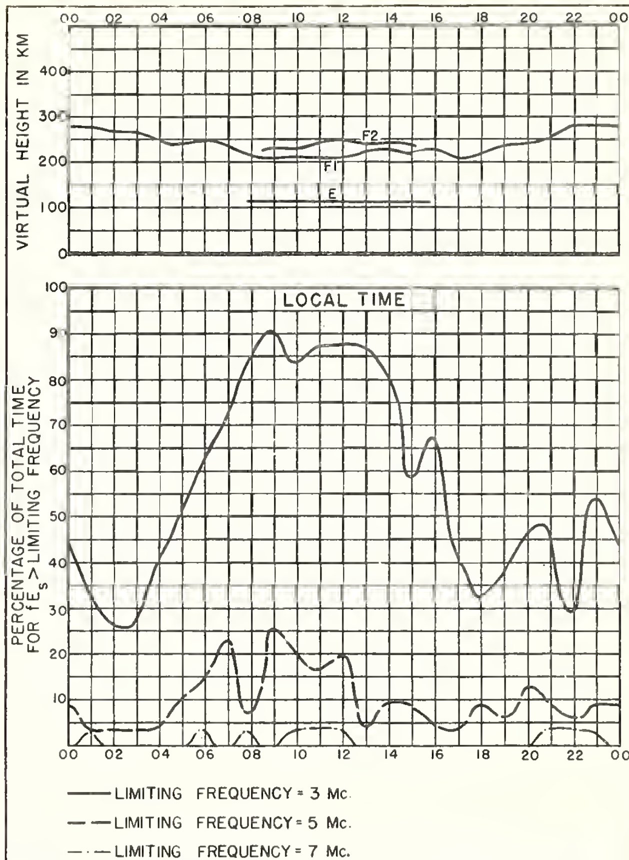


Fig. 2. WASHINGTON, D.C. DECEMBER, 1945.

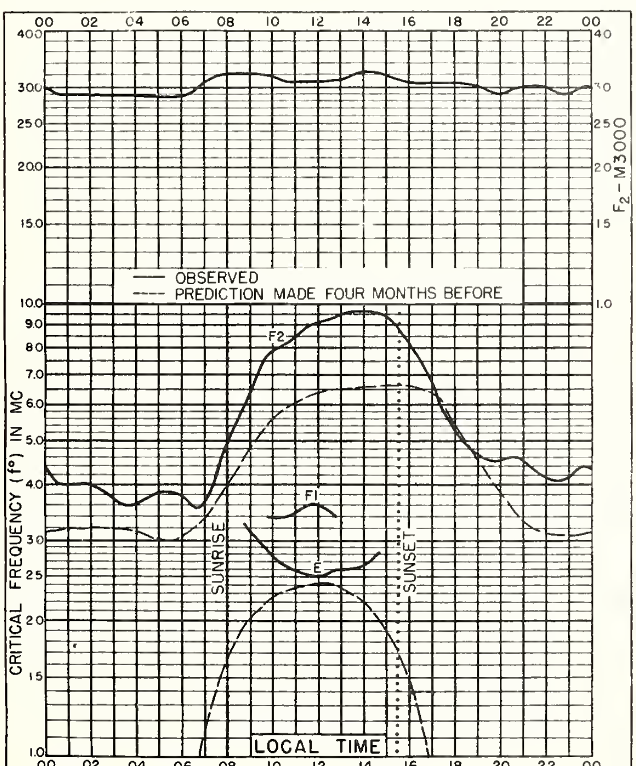


Fig. 3. CHURCHILL, CANADA 58.8°N, 94.2°W NOVEMBER, 1945.

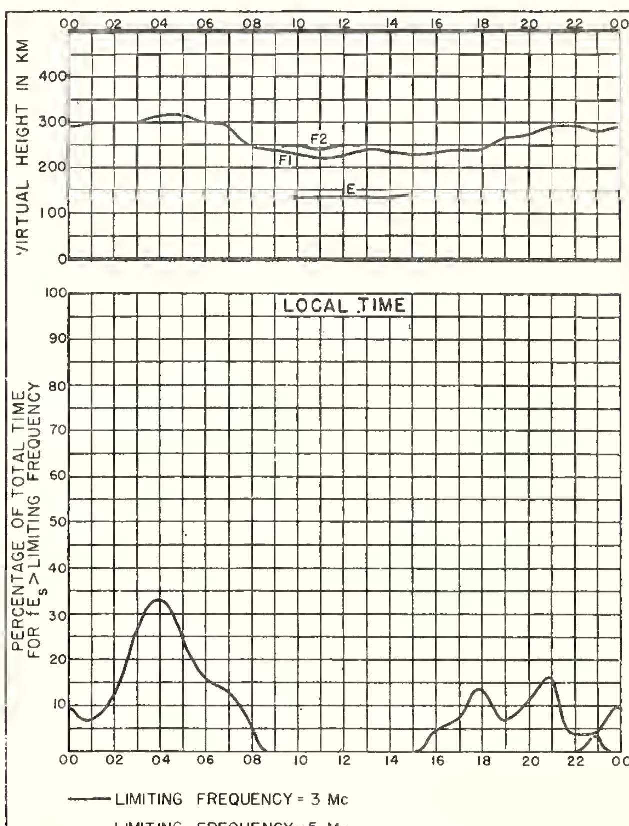


Fig. 4. CHURCHILL, CANADA NOVEMBER, 1945.

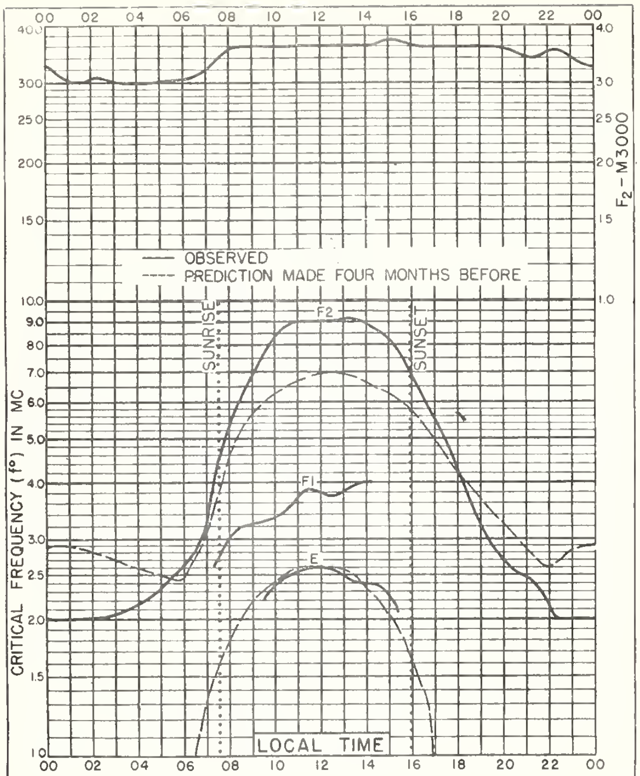


Fig. 5. PRINCE RUPERT, CANADA
54.3°N, 130.3°W NOVEMBER, 1945.

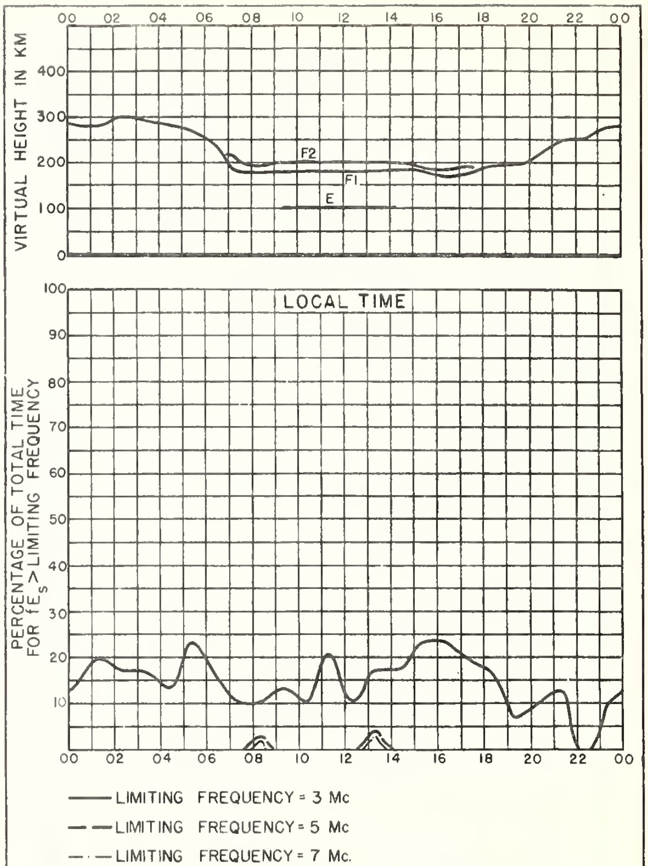


Fig. 6. PRINCE RUPERT, CANADA NOVEMBER, 1945.

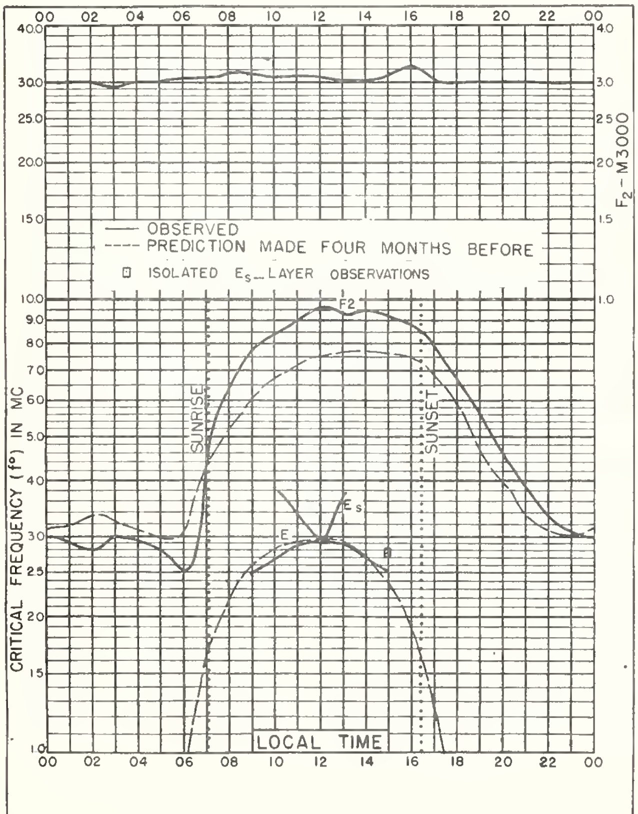


Fig. 7. OTTAWA, CANADA
45.5°N, 75.8°W NOVEMBER, 1945.

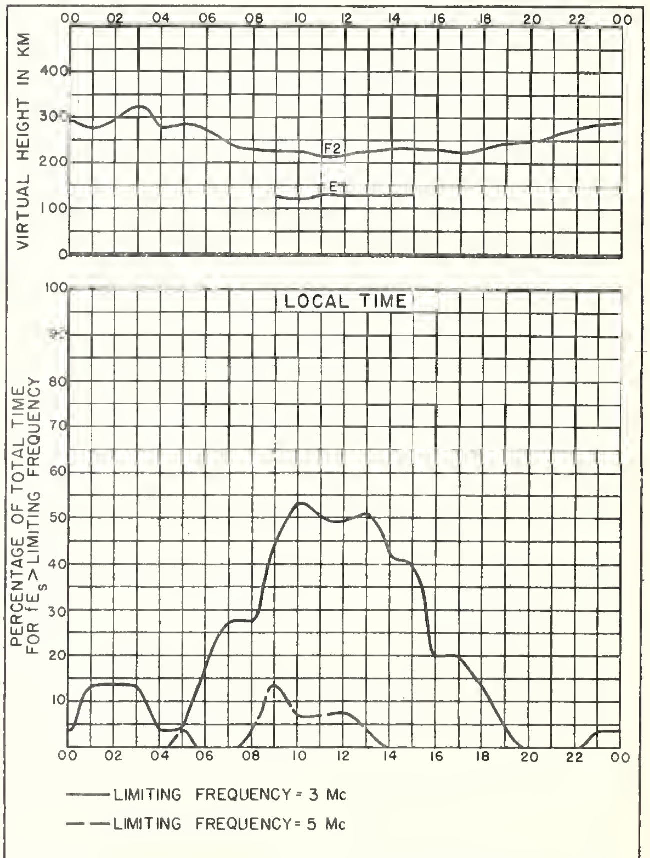


Fig. 8. OTTAWA, CANADA NOVEMBER, 1945.

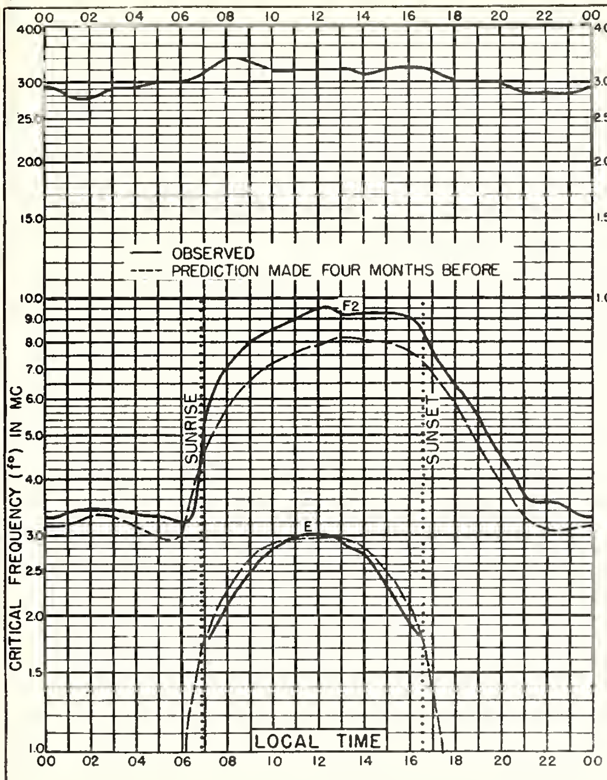


Fig. 9. BOSTON, MASSACHUSETTS
42.4°N, 71.2°W NOVEMBER, 1945.

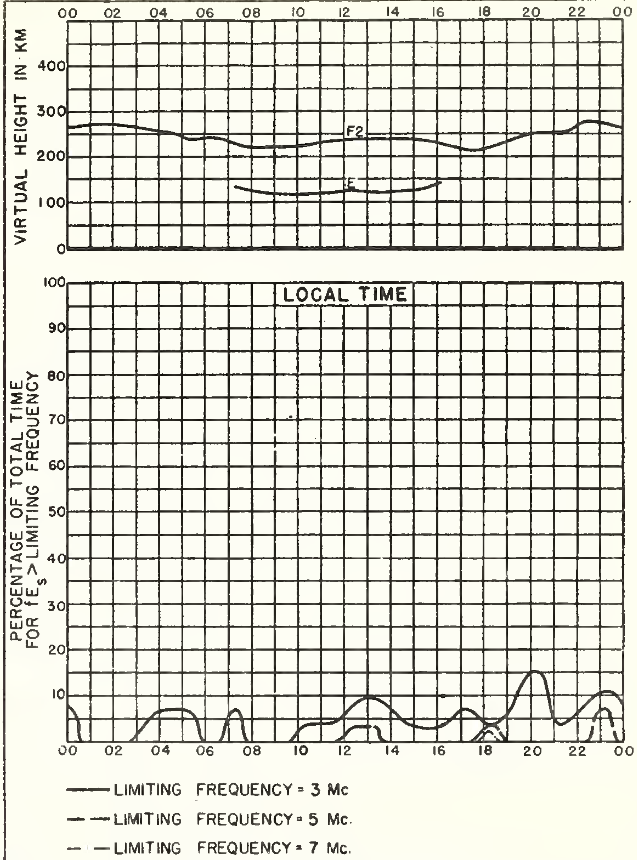


Fig. 10. BOSTON, MASSACHUSETTS NOVEMBER, 1945.

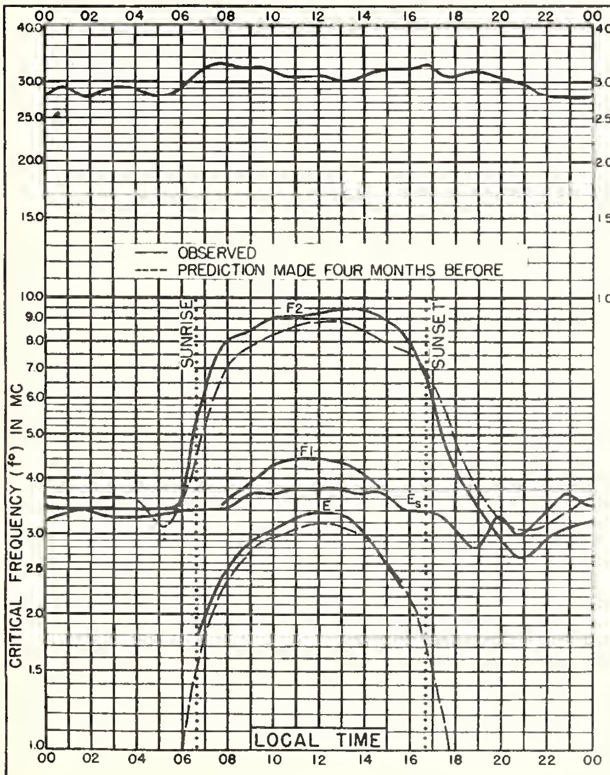


Fig. 11. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W NOVEMBER, 1945.

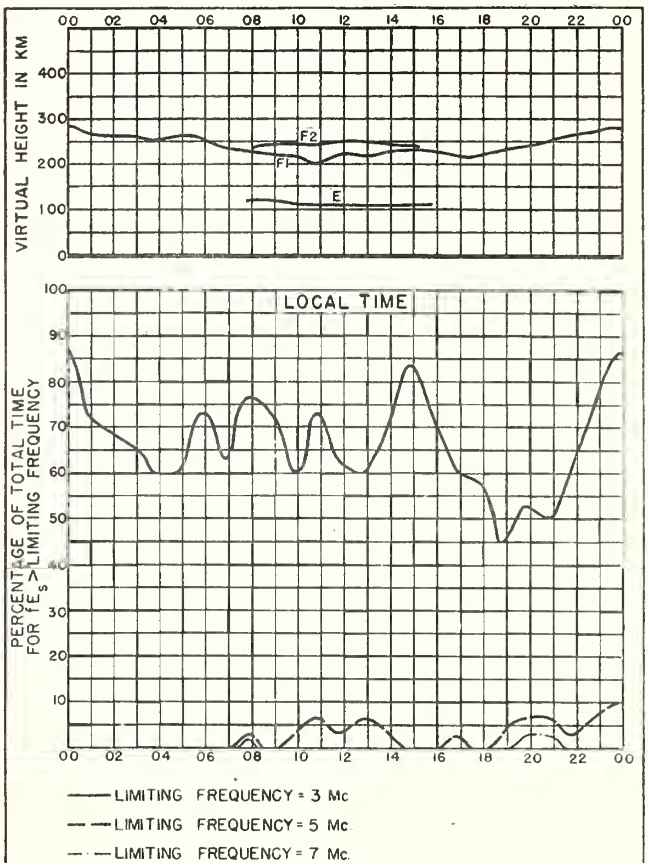


Fig. 12. SAN FRANCISCO, CALIFORNIA NOVEMBER, 1945

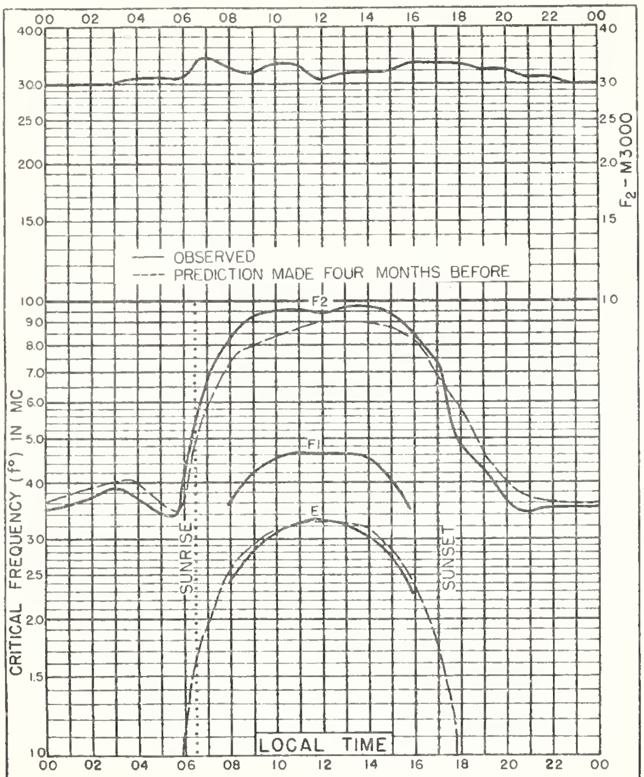


Fig. 13. BATON ROUGE, LOUISIANA
30.5°N, 91.2W NOVEMBER, 1945.

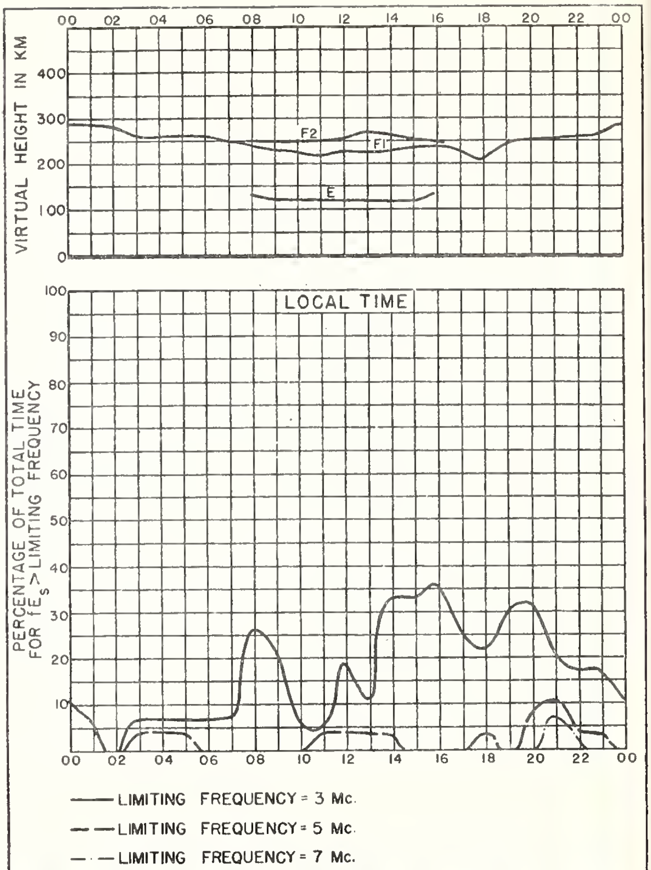


Fig. 14. BATON ROUGE, LOUISIANA NOVEMBER, 1945.

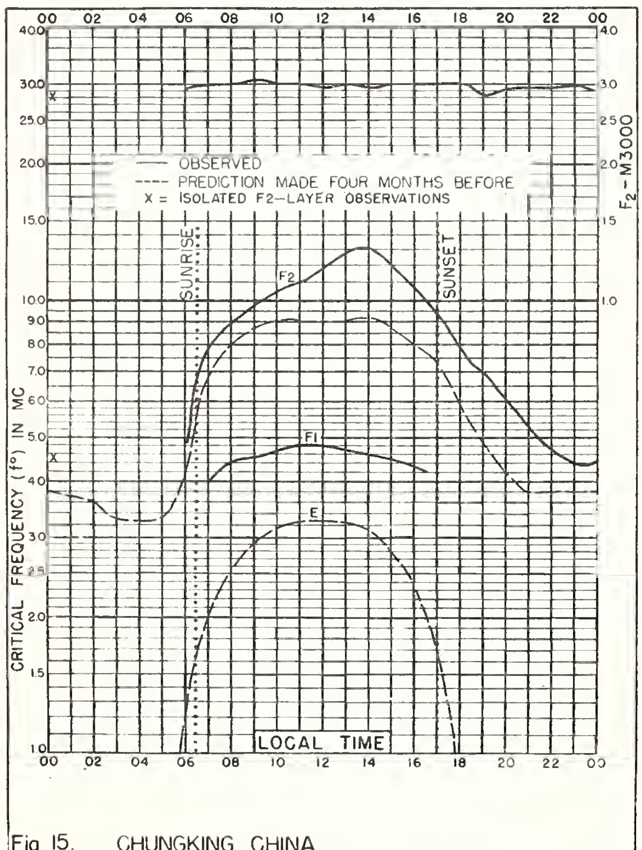


Fig. 15. CHUNGKING, CHINA
29.4°N, 106.8°E NOVEMBER, 1945.

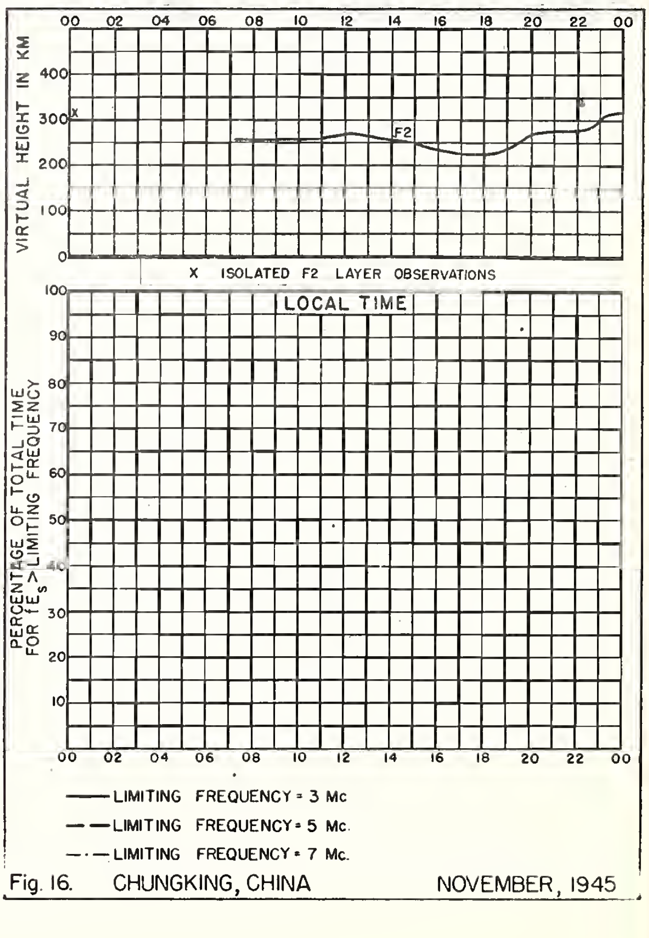


Fig. 16. CHUNGKING, CHINA NOVEMBER, 1945

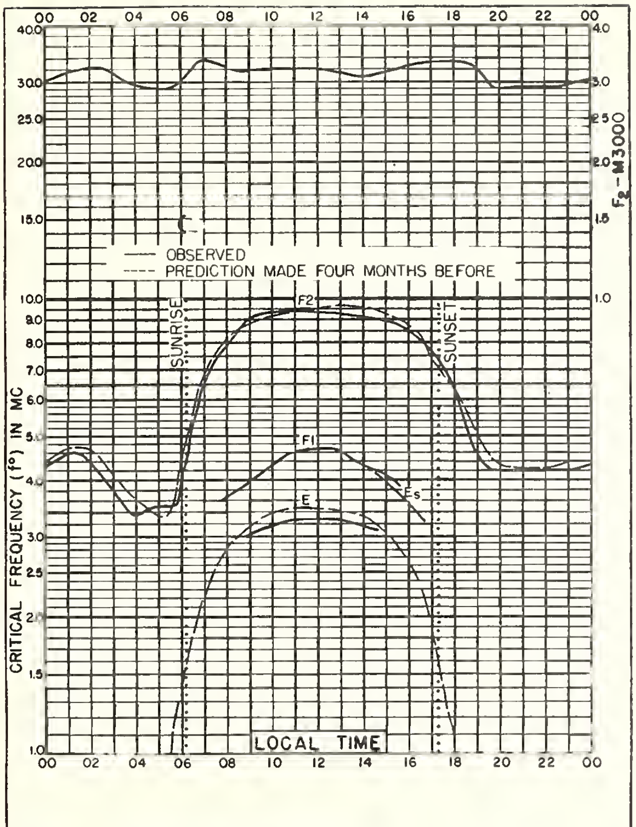


Fig. 17. SAN JUAN, PUERTO RICO
18.4°N, 66.1°W NOVEMBER, 1945.

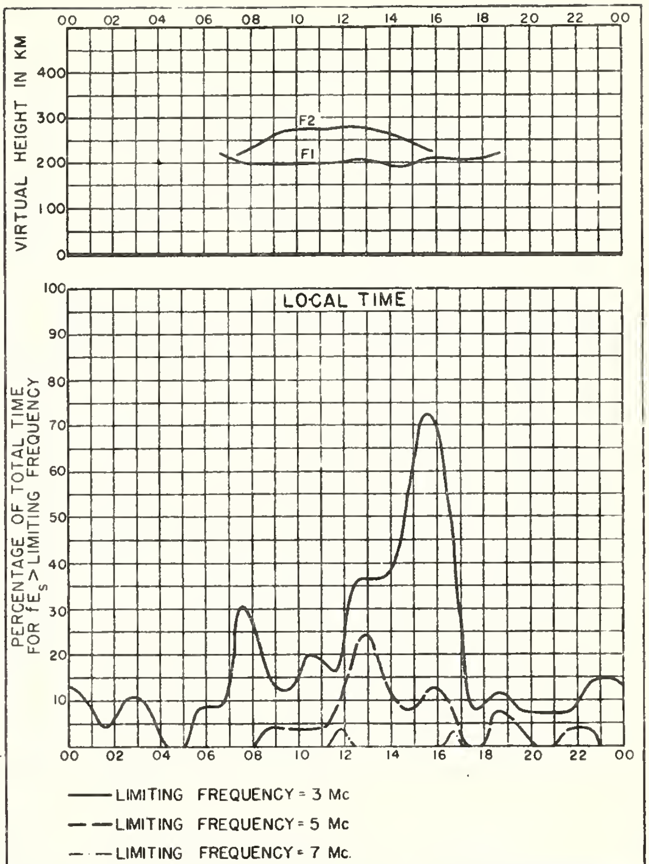


Fig. 18. SAN JUAN, PUERTO RICO NOVEMBER, 1945.

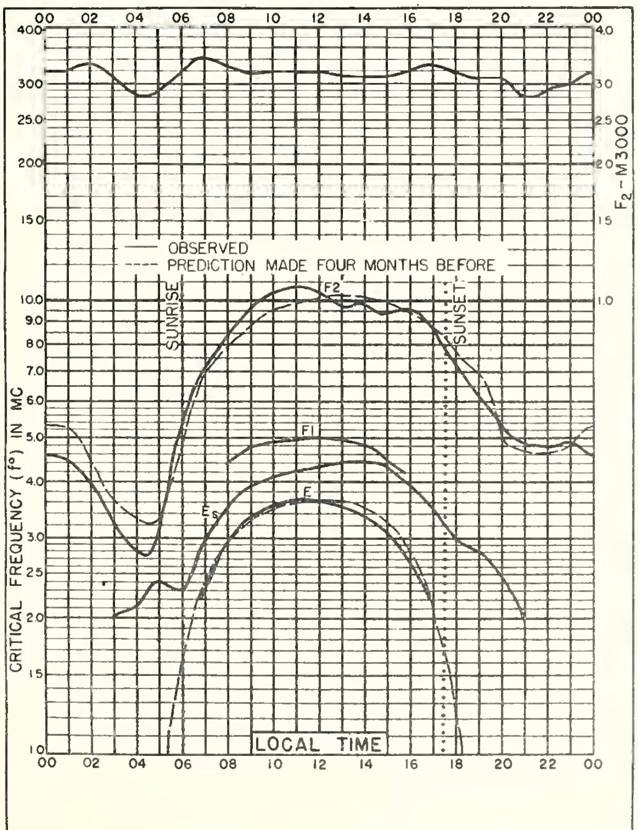


Fig. 19. TRINIDAD, BRIT. WEST INDIES
10.6°N, 61.2°W NOVEMBER, 1945.

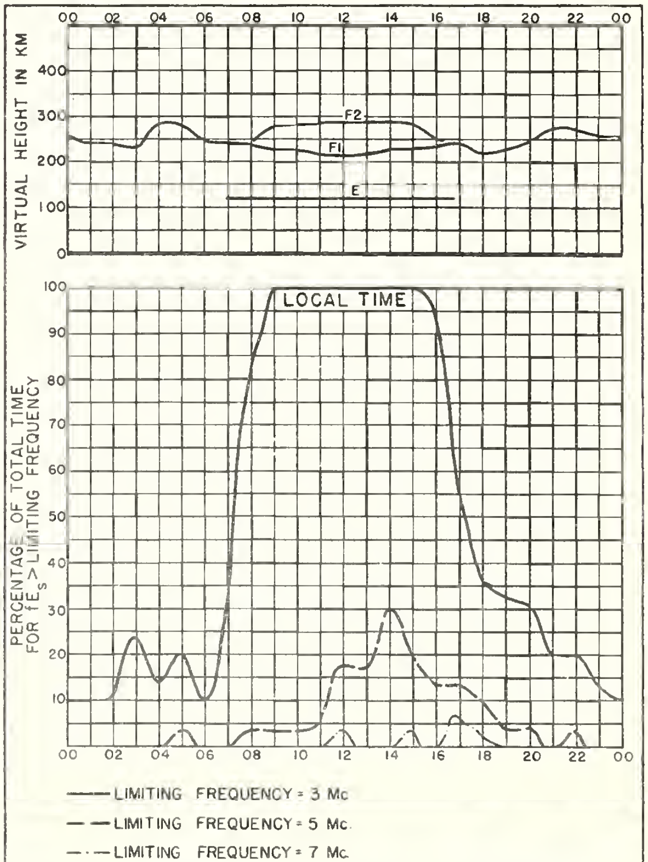


Fig. 20. TRINIDAD, BRIT. WEST INDIES NOVEMBER, 1945.

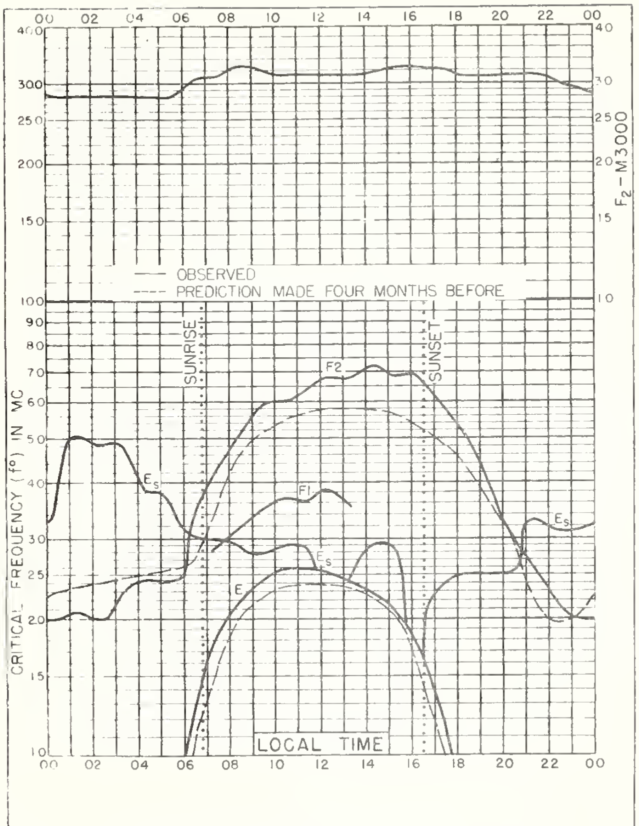


Fig. 21. FAIRBANKS, ALASKA
64.9°N, 147.8°W OCTOBER, 1945.

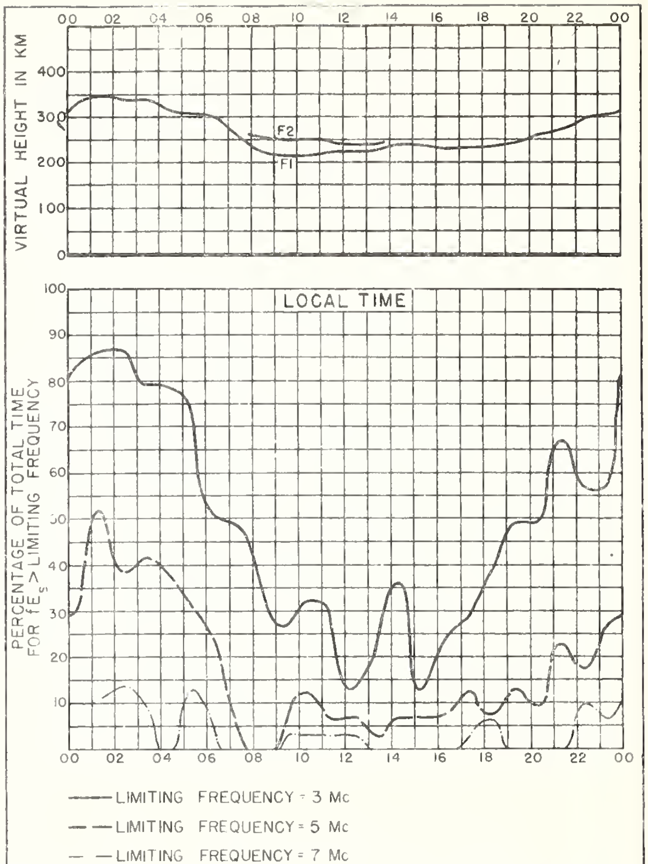


Fig. 22. FAIRBANKS, ALASKA OCTOBER, 1945.

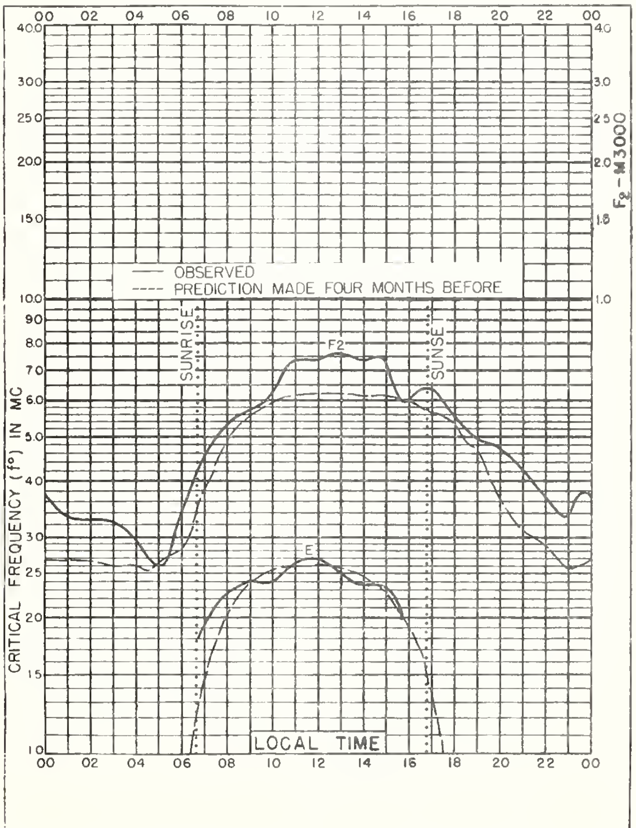


Fig 23 OSLO, NORWAY
59.9°N, 11.0°E OCTOBER, 1945.

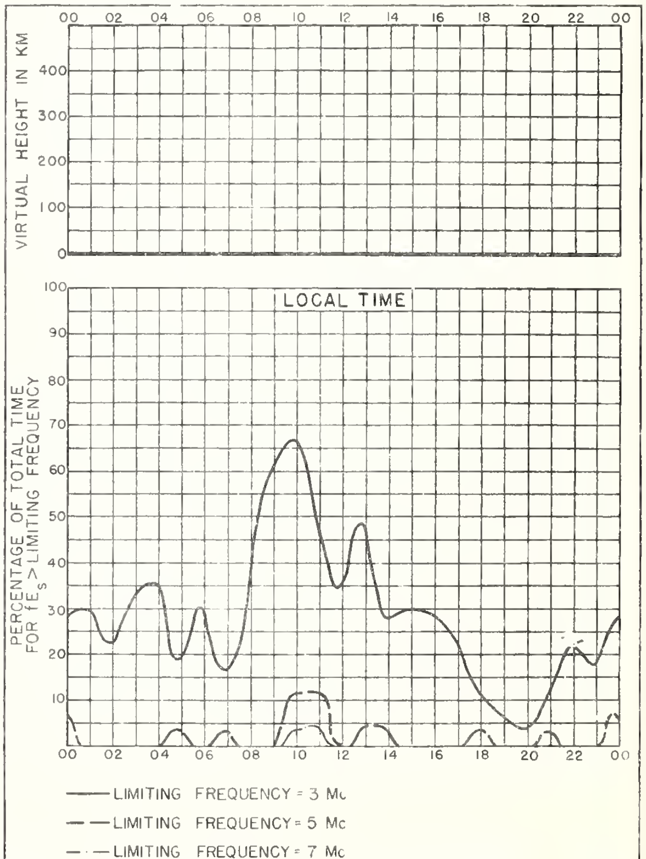


Fig. 24. OSLO, NORWAY OCTOBER, 1945.

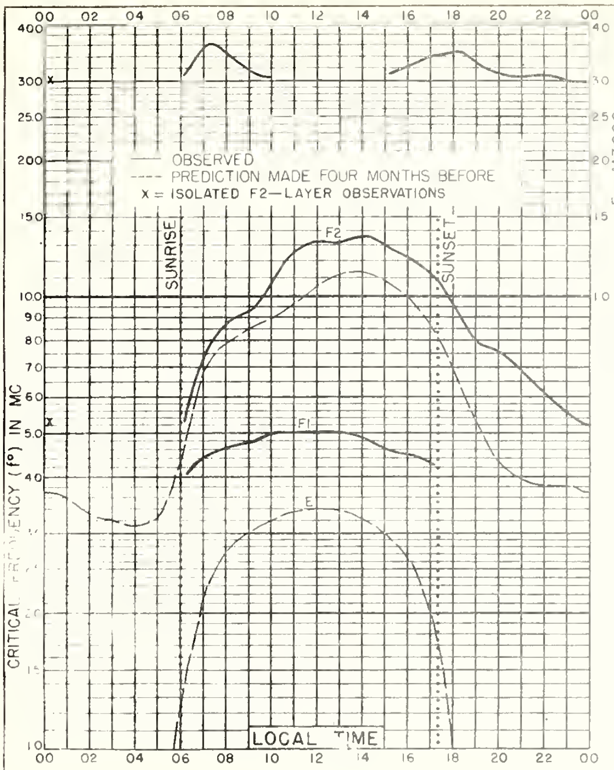


Fig. 25. CHUNGKING, CHINA
29.4°N, 106.8°E OCTOBER, 1945.

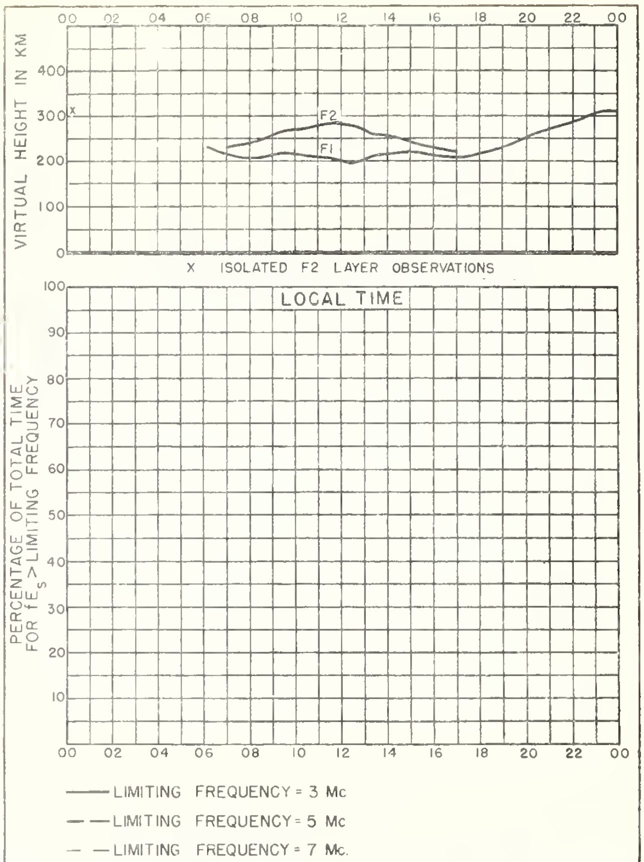


Fig. 26. CHUNGKING, CHINA OCTOBER, 1945.

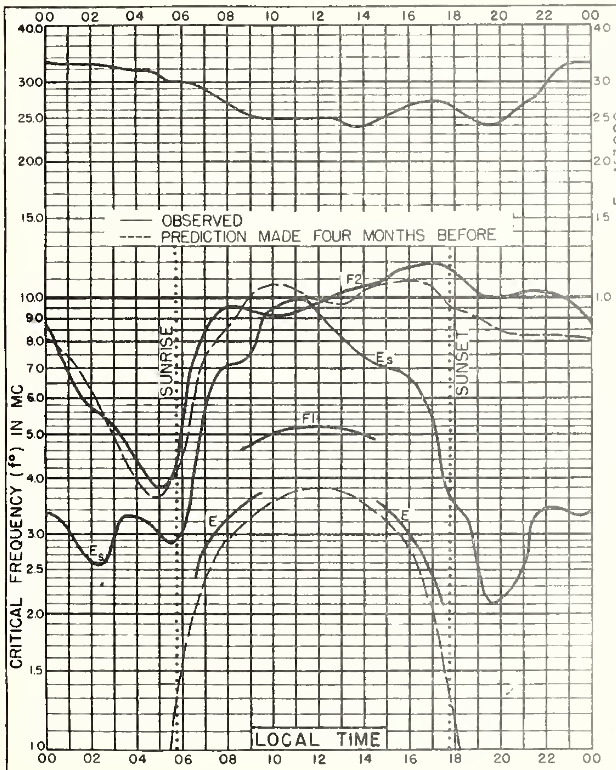


Fig. 27. CHRISTMAS I.
1.9°N, 157.3°W OCTOBER, 1945.

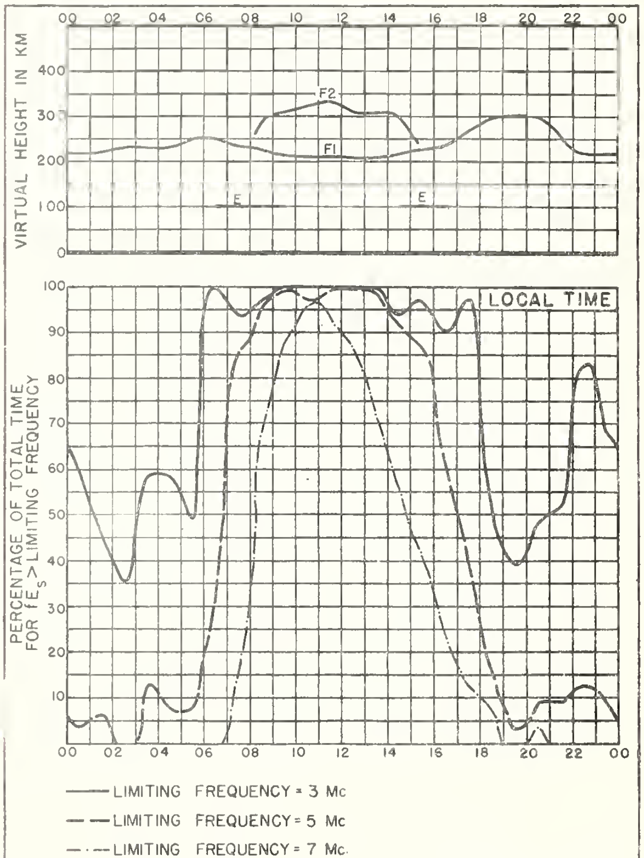


Fig. 28. CHRISTMAS I. OCTOBER, 1945.

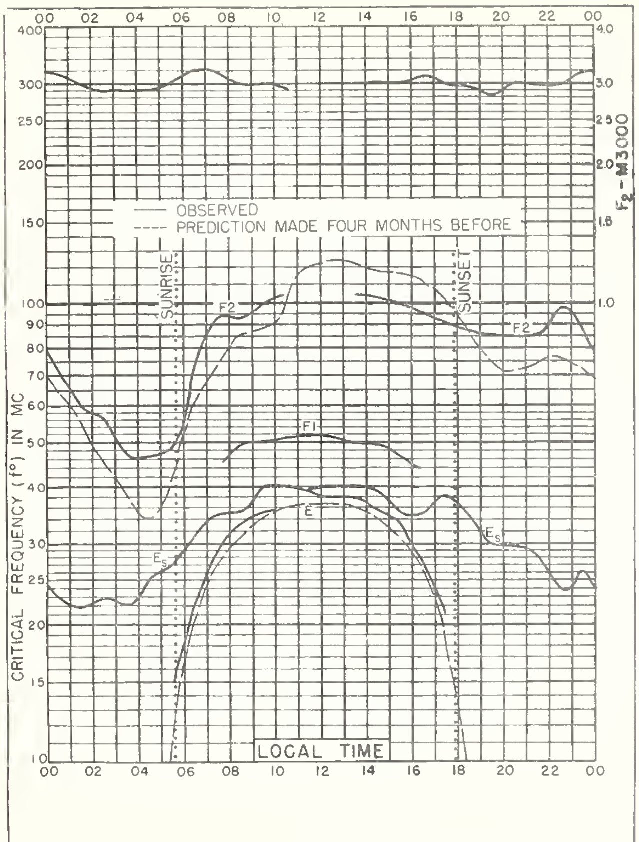


Fig. 29 CAPE YORK, AUSTRALIA
11.0°S, 142.4°E OCTOBER, 1945.

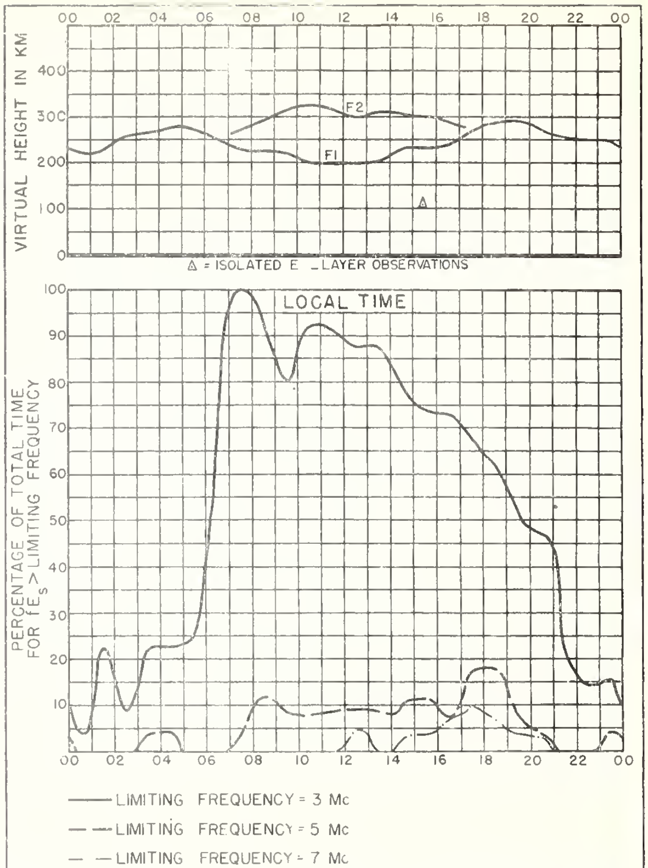


Fig. 30. CAPE YORK, AUSTRALIA OCTOBER, 1945.

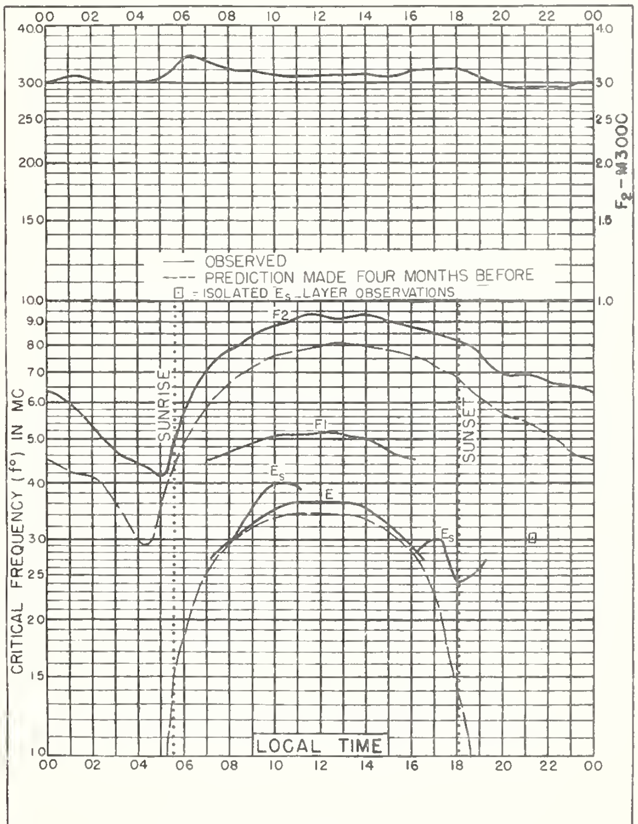


Fig. 31. BRISBANE, AUSTRALIA
27.5°S, 153.0°E OCTOBER 1945.

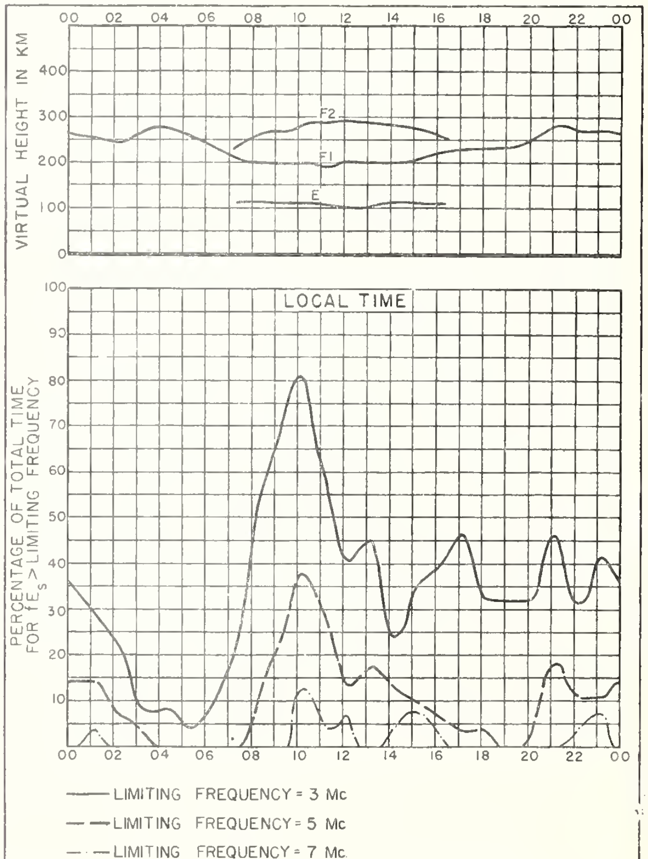


Fig. 32. BRISBANE, AUSTRALIA OCTOBER, 1945

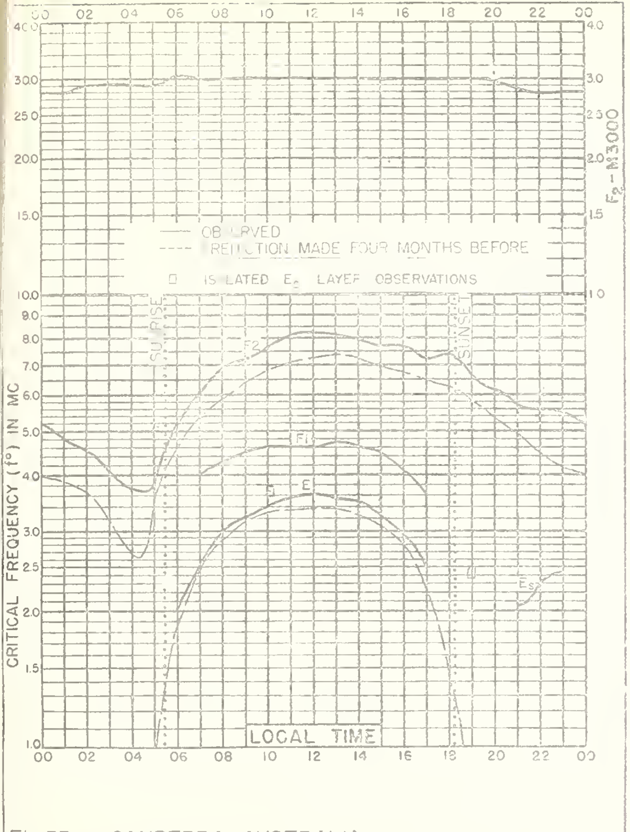


Fig. 33. CANBERRA, AUSTRALIA
35.3°S, 149.0°E OCTOBER, 1945.

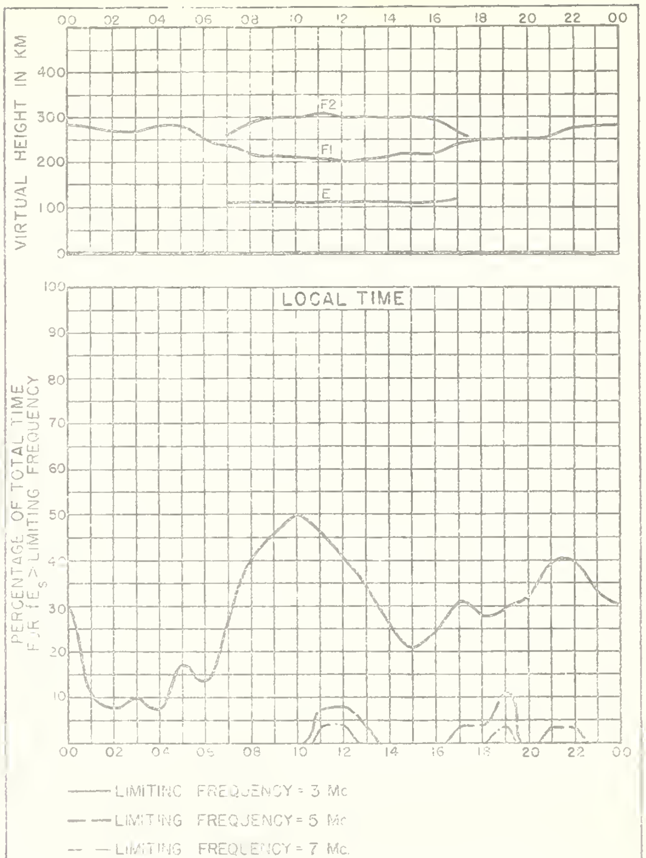


Fig. 34 CANBERRA, AUSTRALIA OCTOBER, 1945.

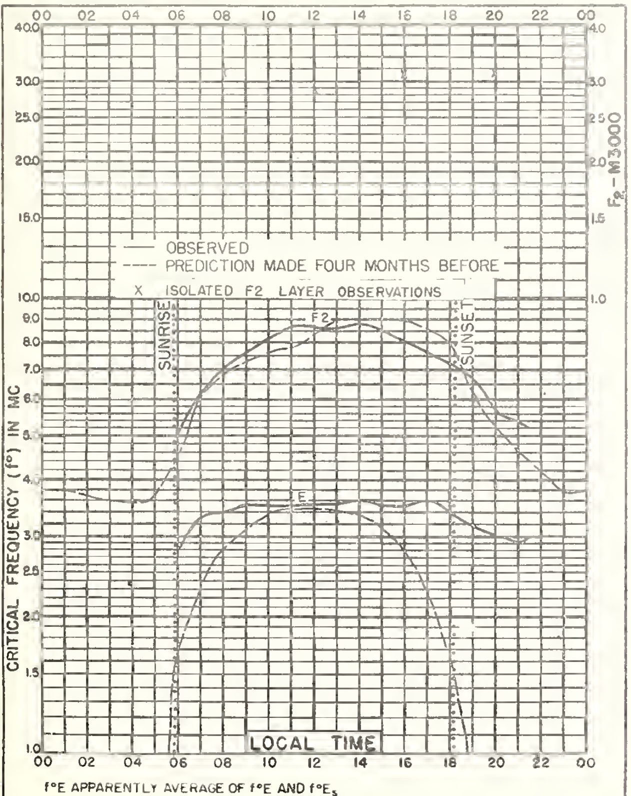


Fig. 35. PESHAWAR, INDIA
34.0°N, 71.5°E SEPTEMBER, 1945.

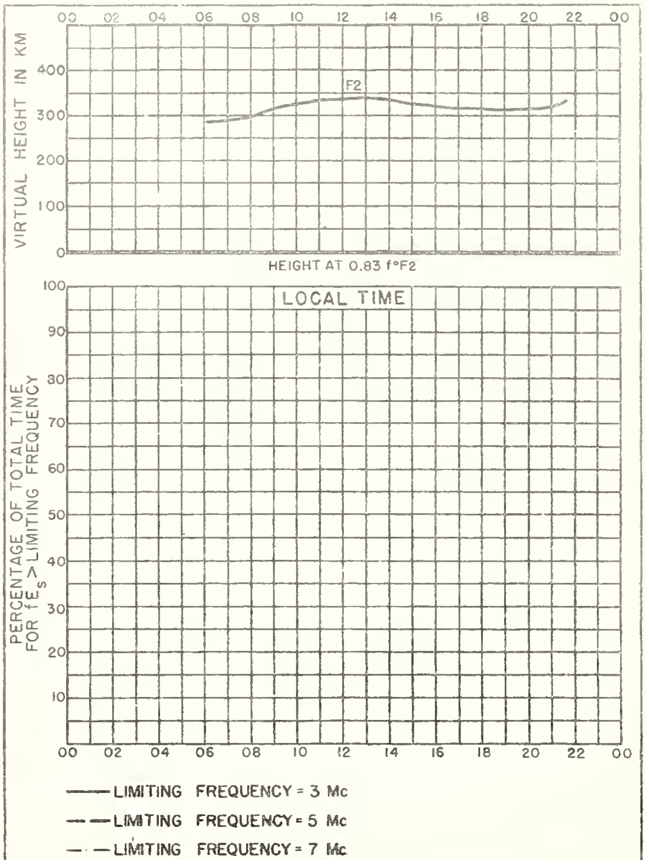


Fig. 36. PESHAWAR, INDIA SEPTEMBER, 1945.

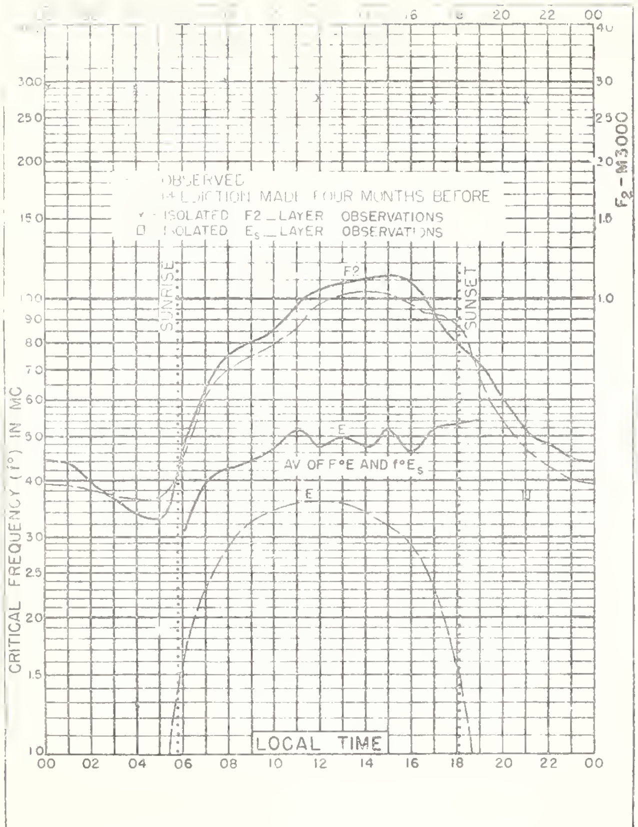


Fig. 37. DELHI, INDIA
28.6°N, 77.2°E SEPTEMBER, 1945.

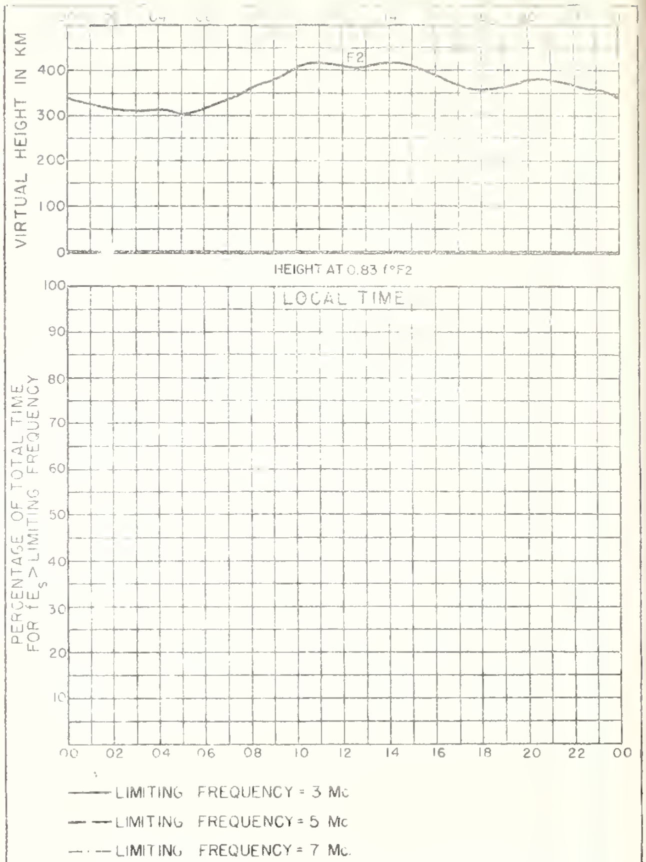


Fig. 38. DELHI, INDIA SEPTEMBER, 1945

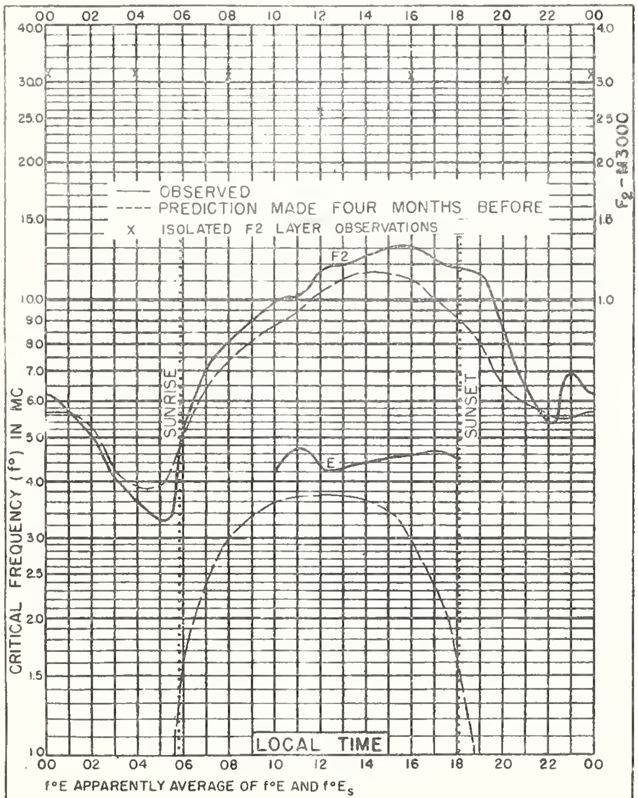


Fig. 39. BOMBAY, INDIA.
19.0°N, 73.0°E SEPTEMBER, 1945.

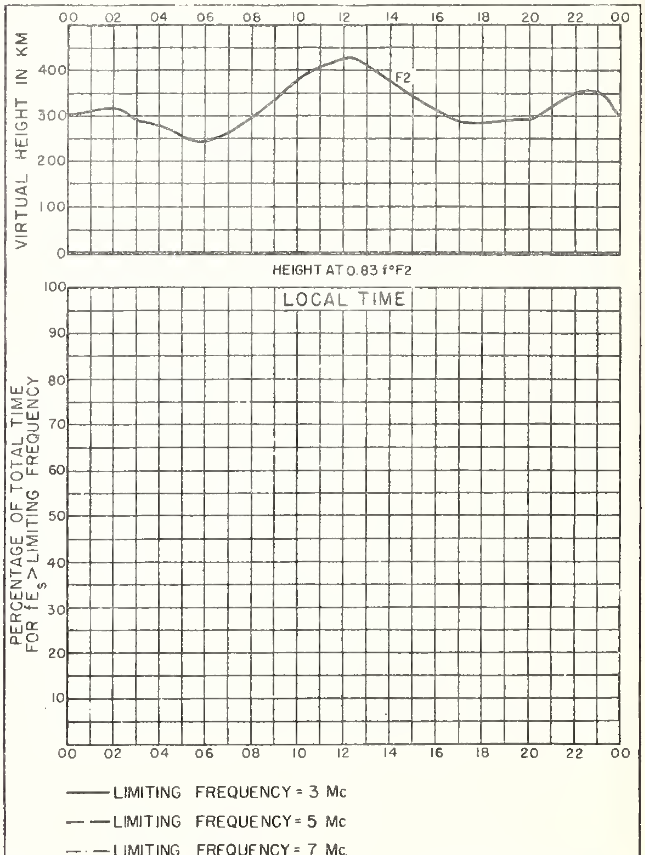


Fig. 40. BOMBAY, INDIA SEPTEMBER, 1945.

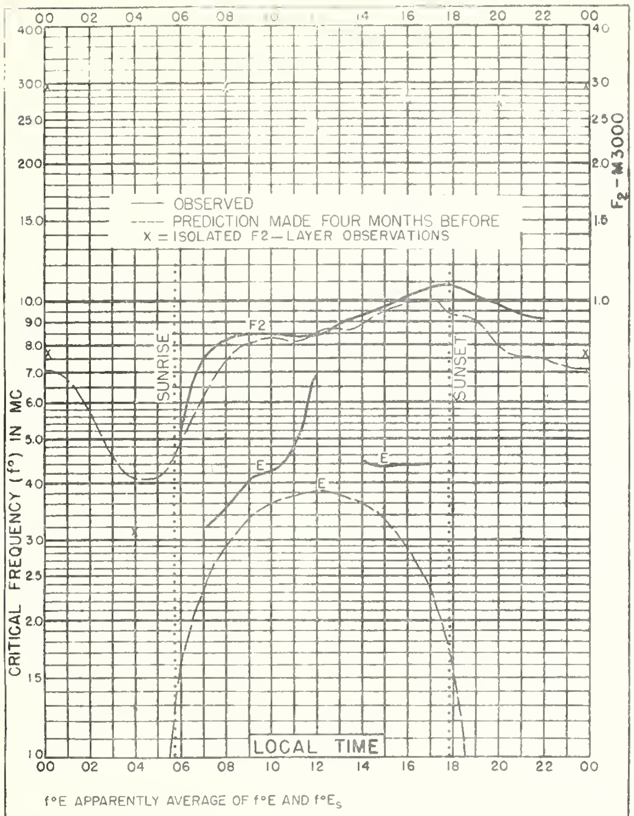


Fig. 41. MADRAS, INDIA
13.0°N, 80.2°E SEPTEMBER, 1945.

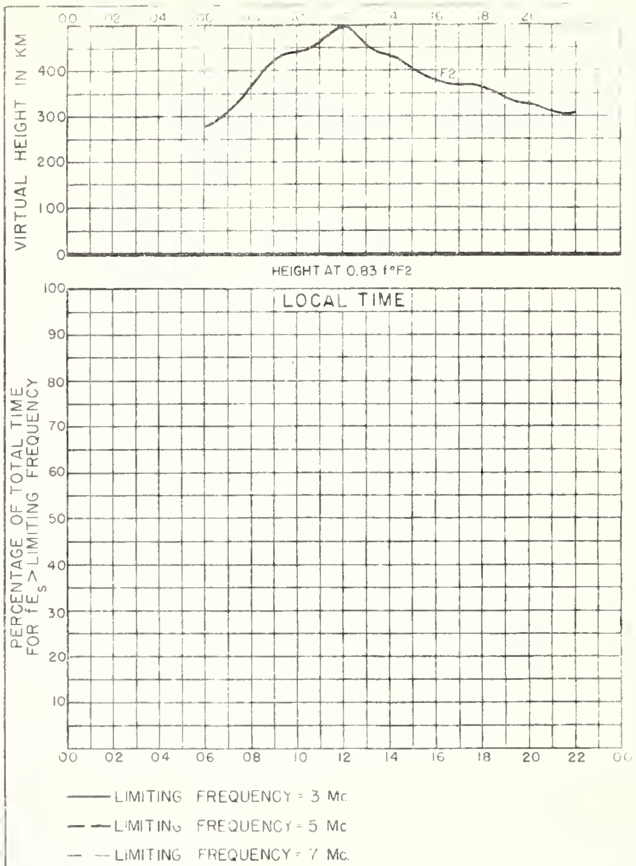


Fig. 42. MADRAS, INDIA SEPTEMBER, 1945.

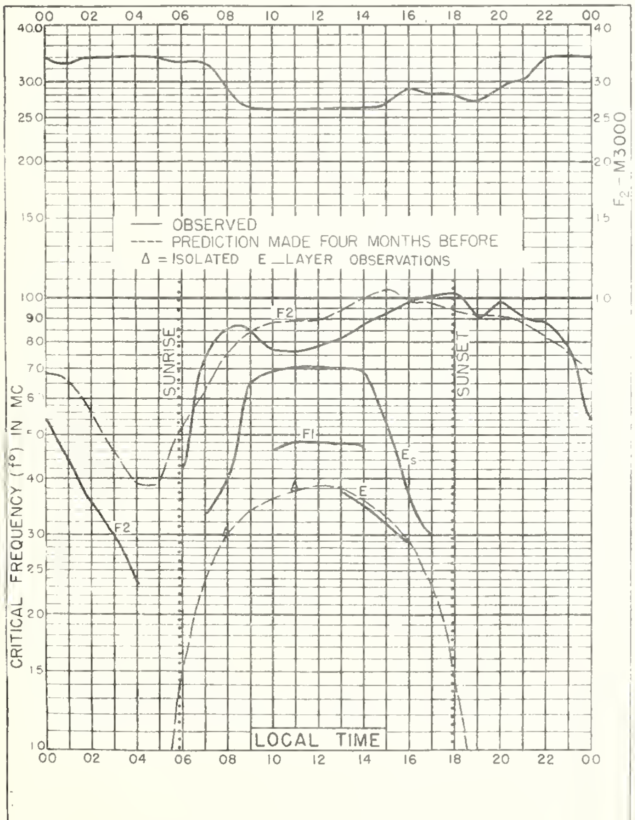


Fig. 43. COLOMBO, CEYLON
6.6°N, 80.0°E SEPTEMBER, 1945.

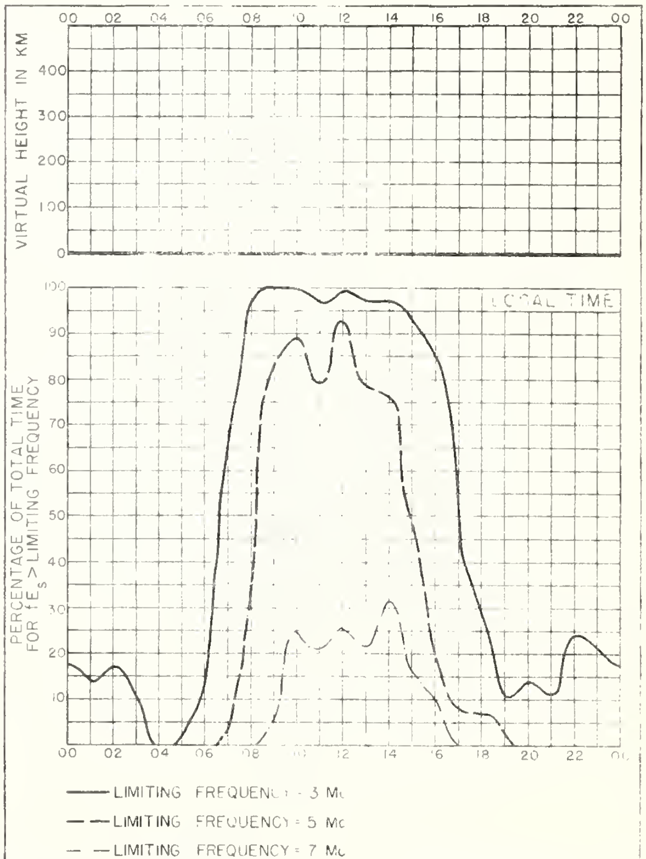


Fig. 44. COLOMBO, CEYLON SEPTEMBER, 1945

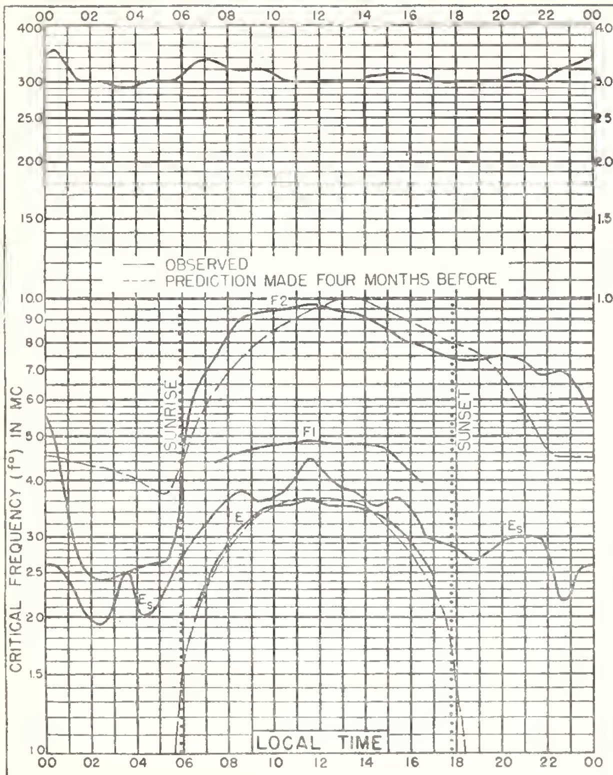


Fig. 45. CAPE YORK, AUSTRALIA
11.0° S, 142.4°E SEPTEMBER, 1945.

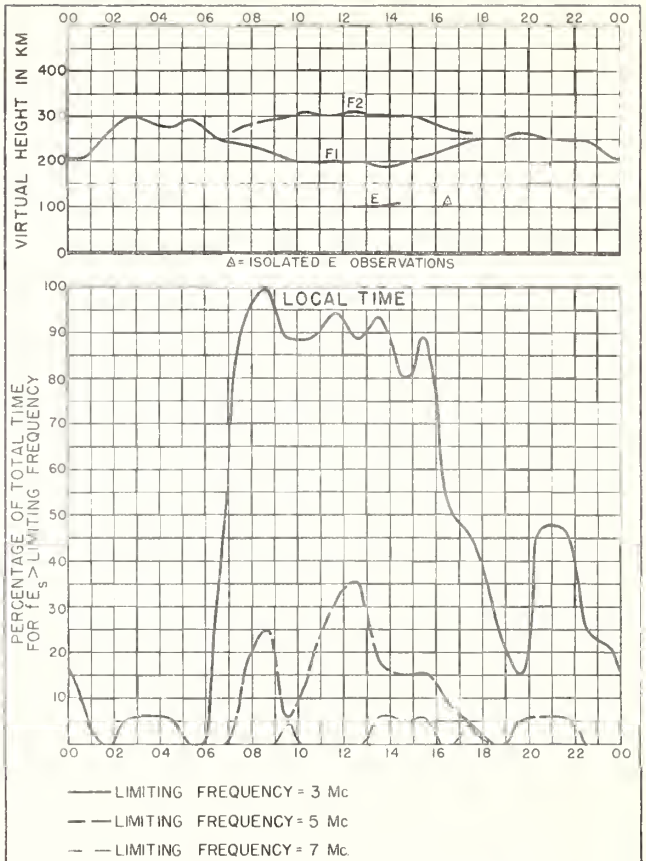


Fig. 46. CAPE YORK, AUSTRALIA SEPTEMBER, 1945.

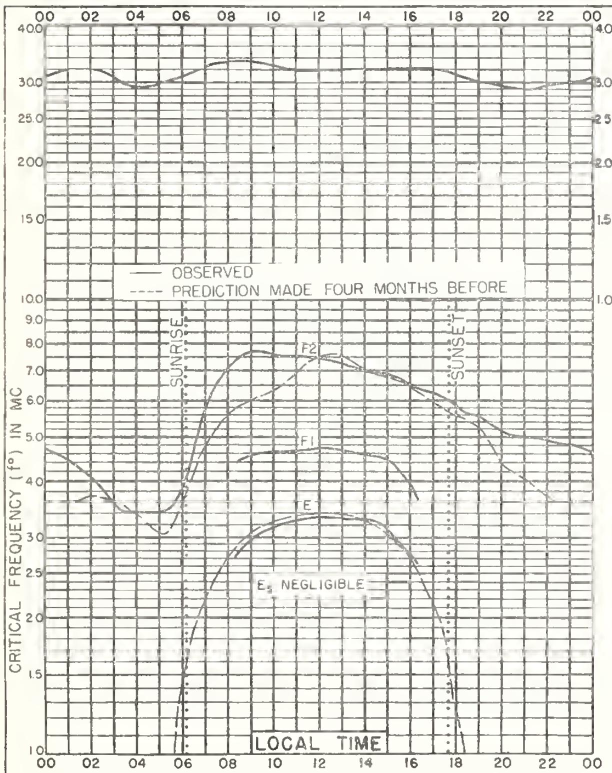


Fig. 47. BRISBANE, AUSTRALIA
27.5° S, 153.0°E SEPTEMBER, 1945.

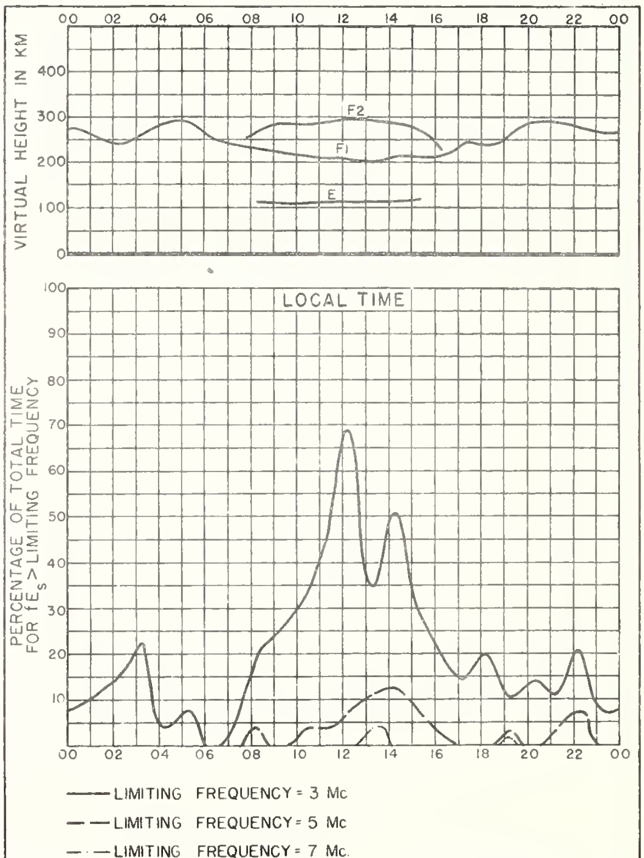


Fig. 48. BRISBANE, AUSTRALIA SEPTEMBER, 1945.

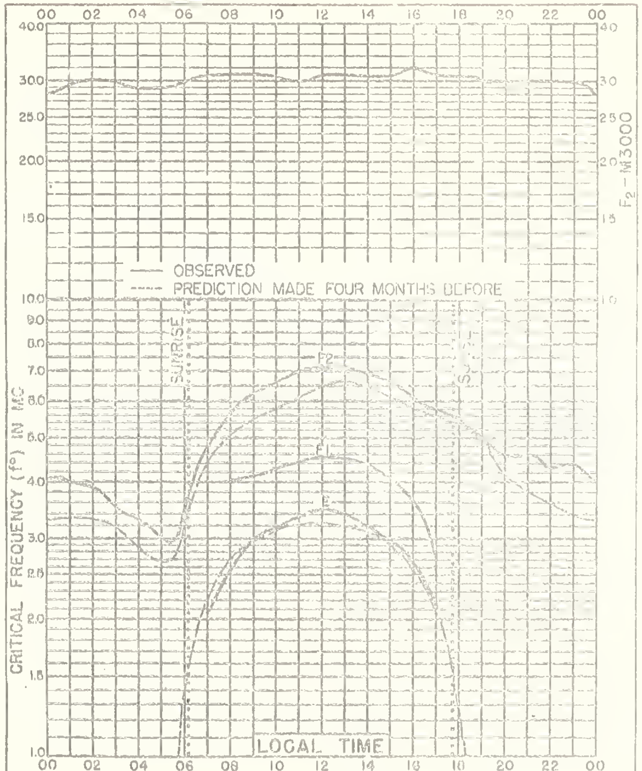


Fig. 49. CANBERRA, AUSTRALIA
35.3°S, 149.0°E SEPTEMBER, 1945

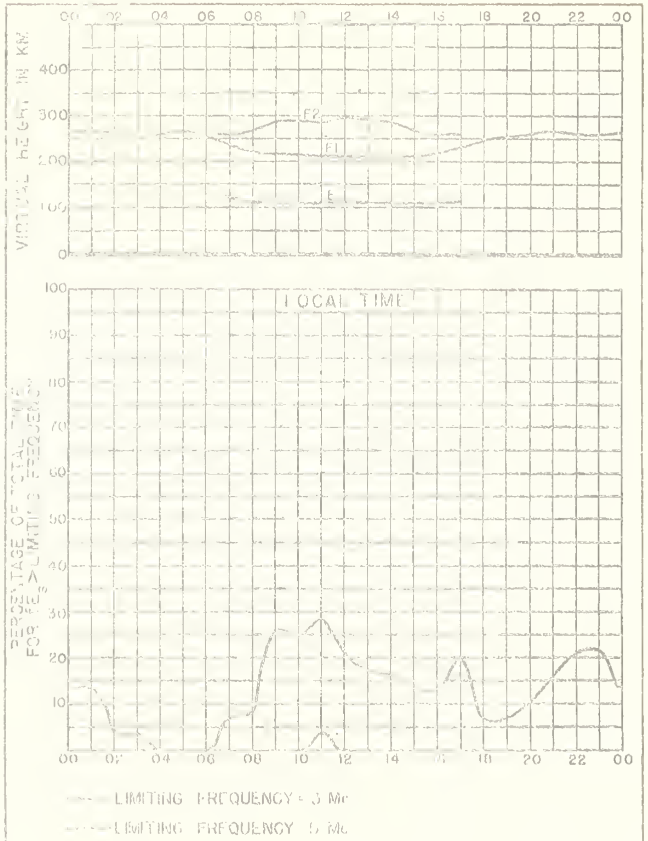


Fig. 50 CANBERRA, AUSTRALIA SEPTEMBER, 1945.

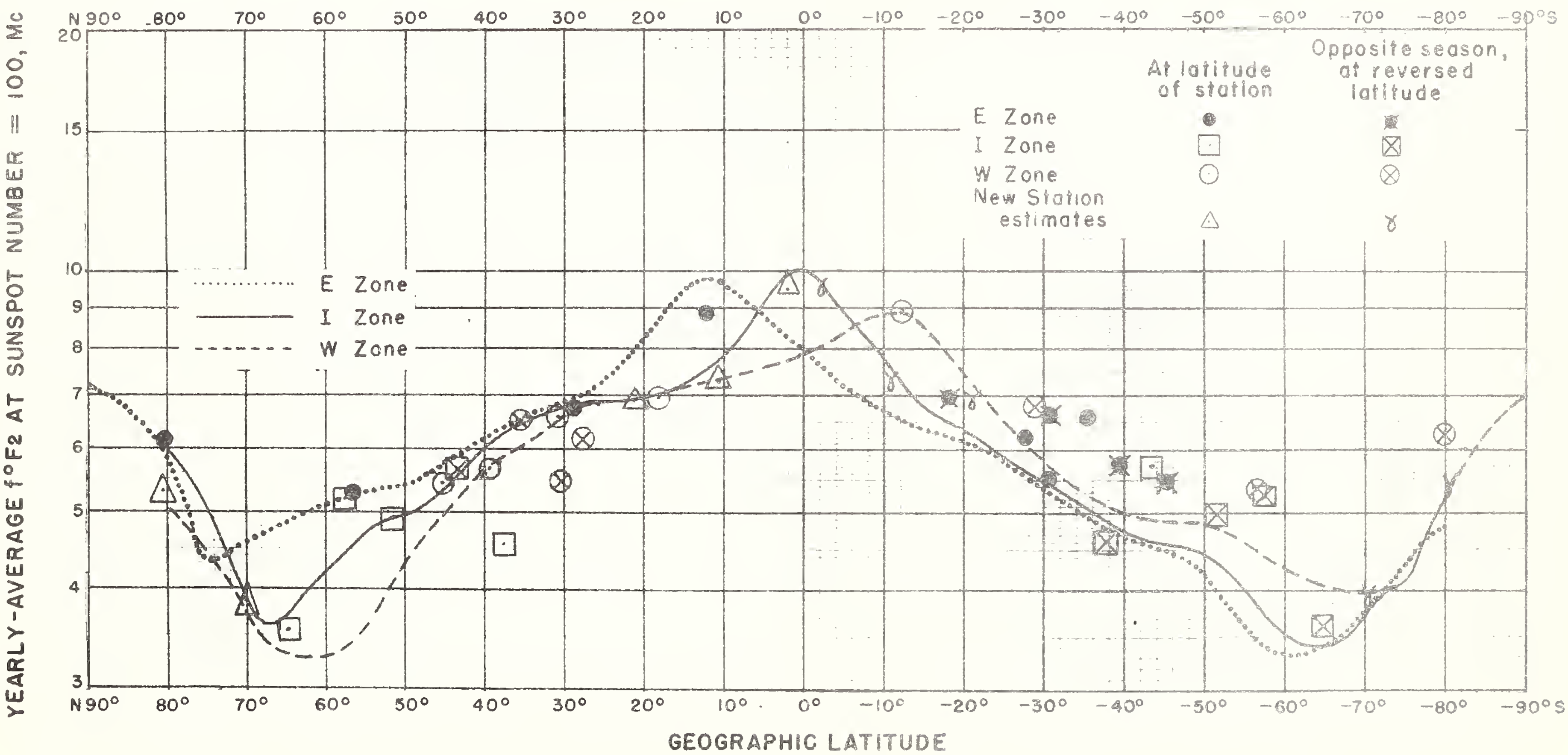


Fig. 51. VARIATION OF f° F2, AT SUNSPOT NUMBER = 100, WITH LATITUDE, 0000 LOCAL TIME.

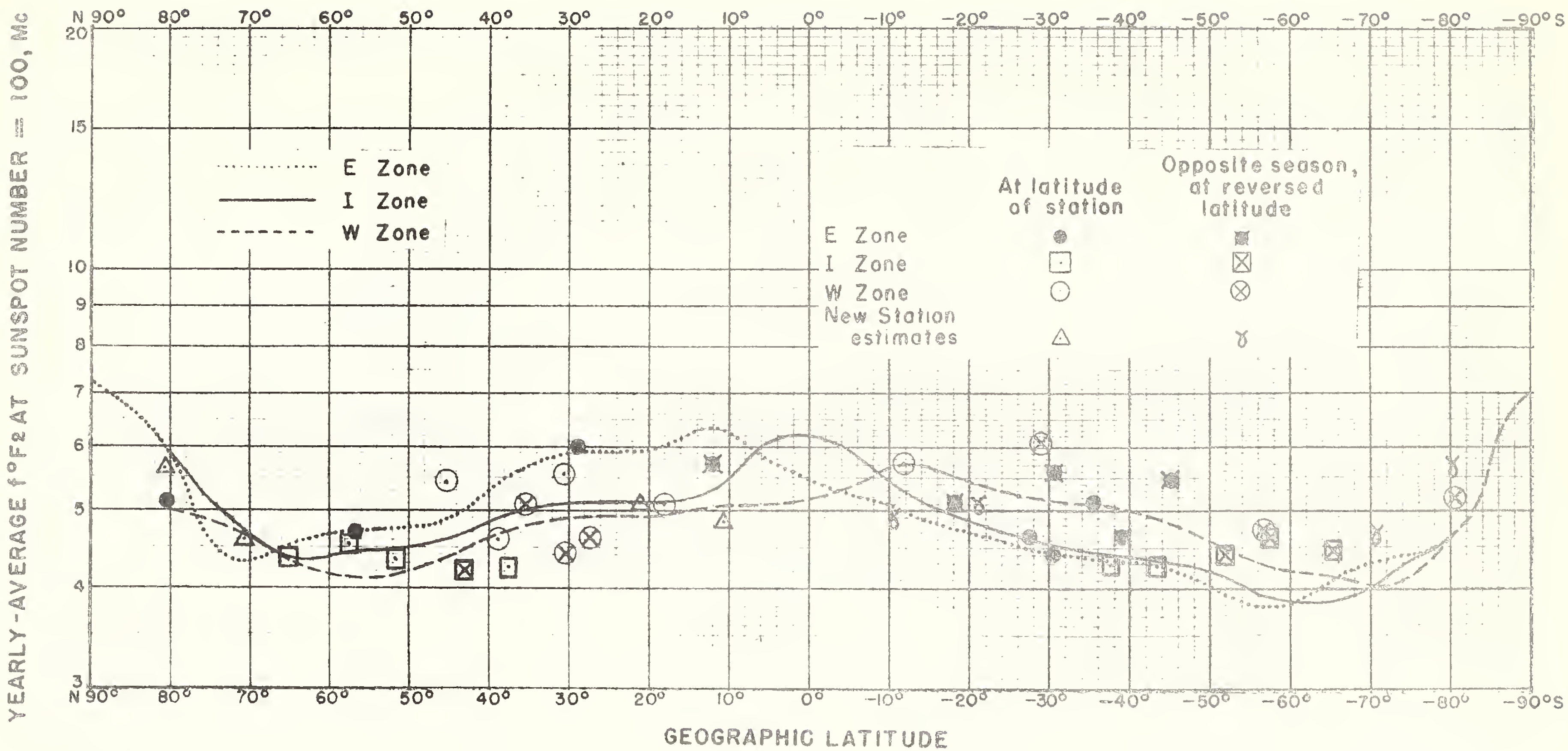


Fig. 52. VARIATION OF f°F2, AT SUNSPOT NUMBER = 100, WITH LATITUDE, 0400 LOCAL TIME.

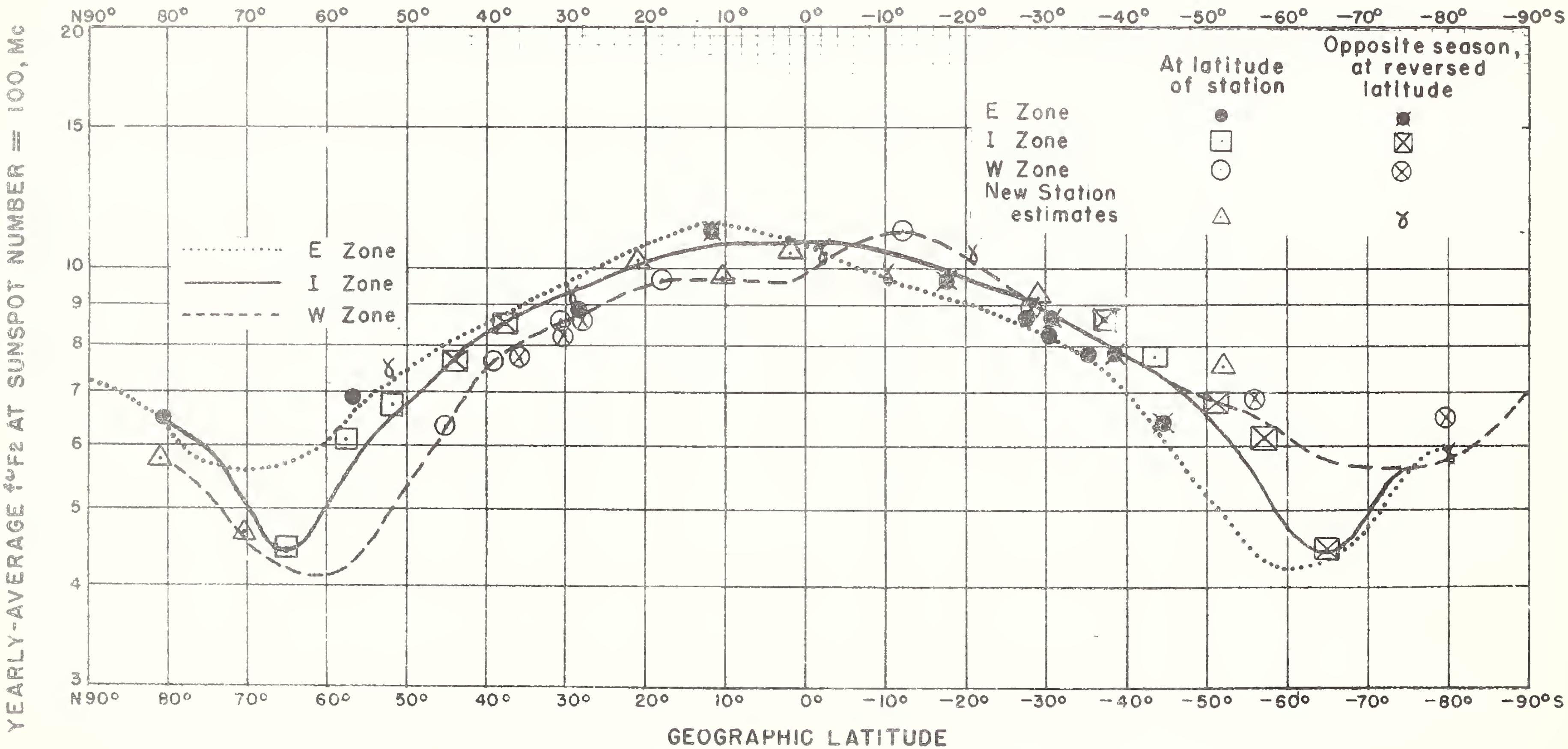


Fig. 53 VARIATION OF f°F2, AT SUNSPOT NUMBER = 100, WITH LATITUDE, 0800 LOCAL TIME.

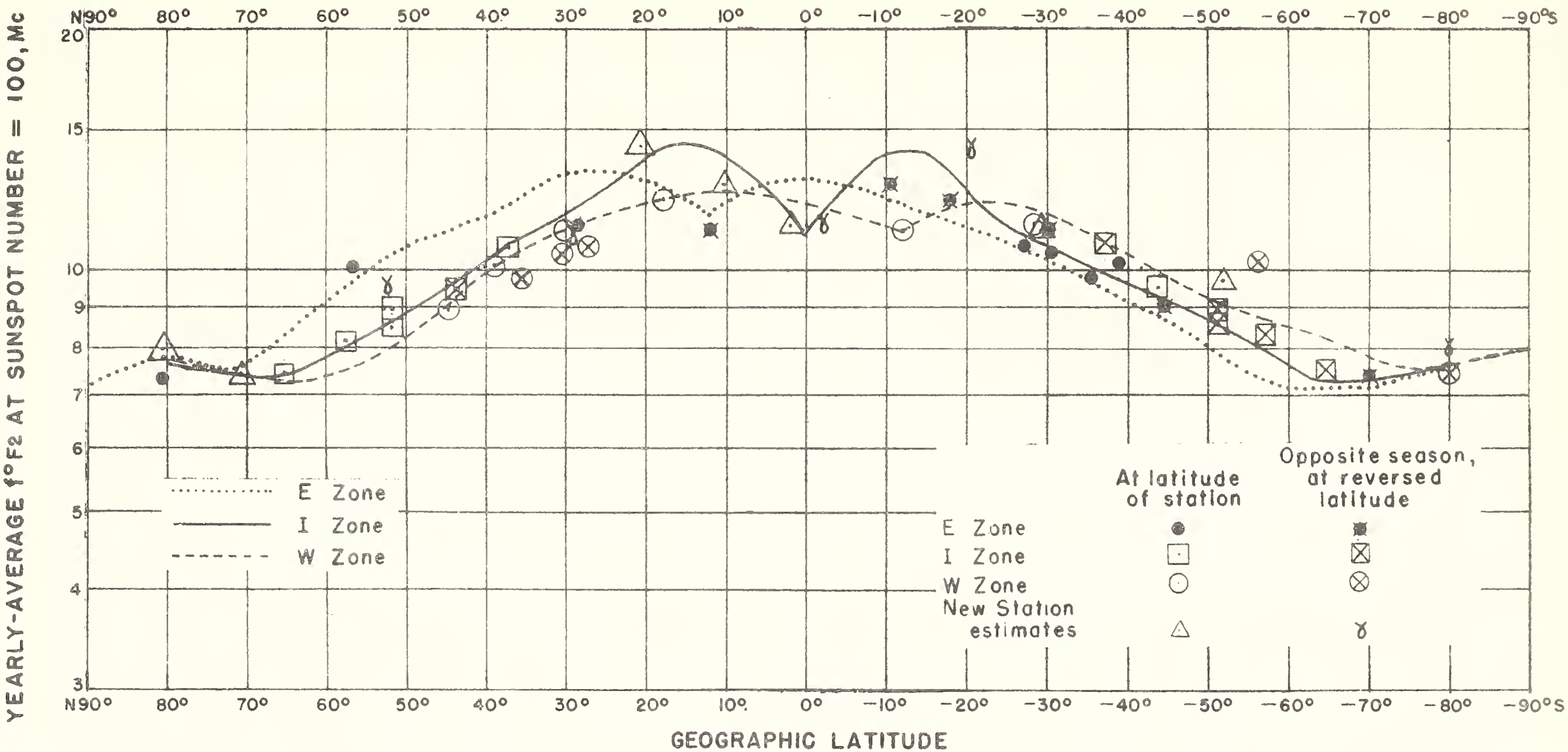


Fig. 54. VARIATION OF f°F2, AT SUNSPOT NUMBER = 100, WITH LATITUDE, 1200 LOCAL TIME.

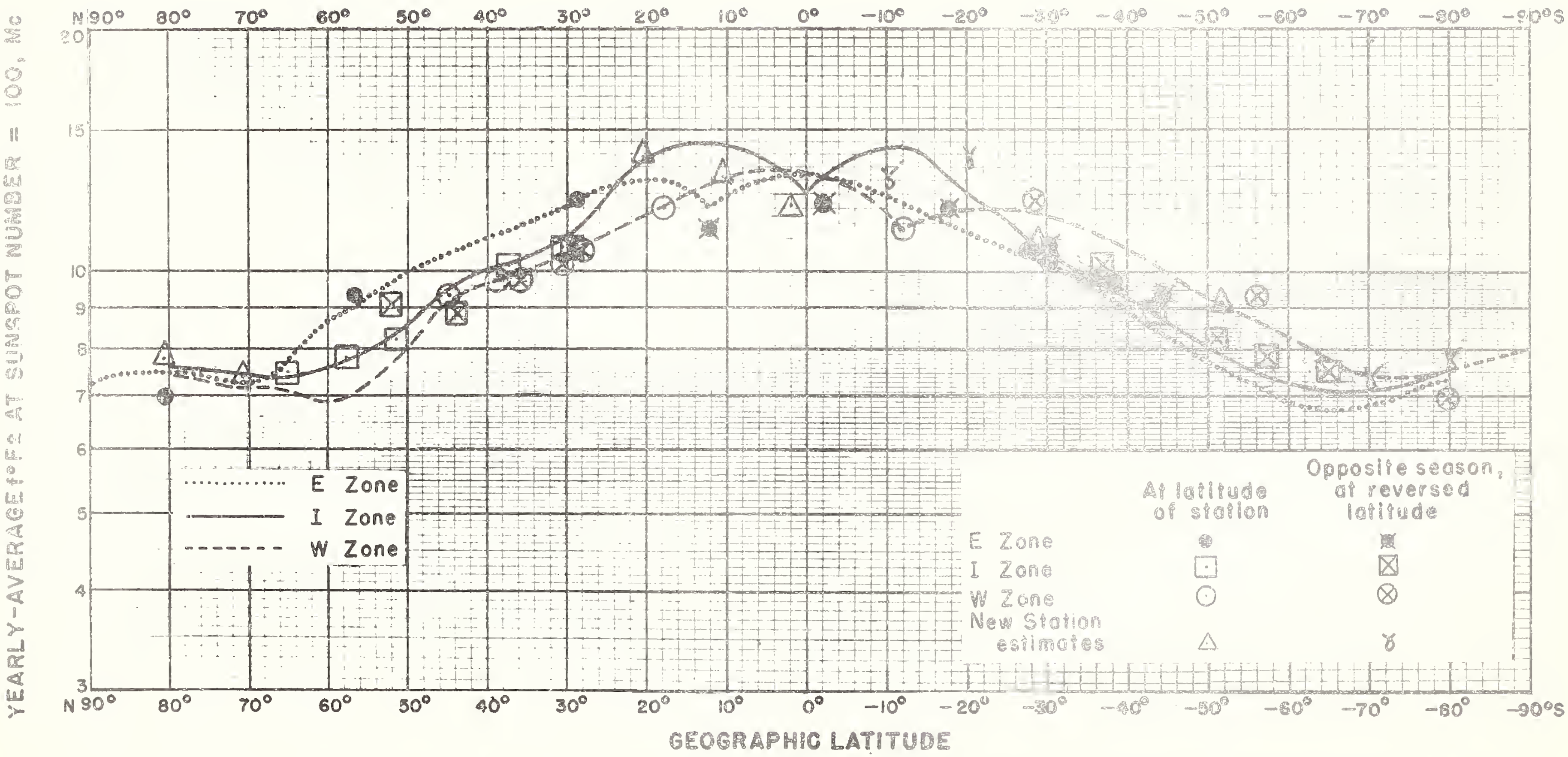


Fig. 55. VARIATION OF f°F2, AT SUNSPOT NUMBER = 100, WITH LATITUDE, 1600 LOCAL TIME.

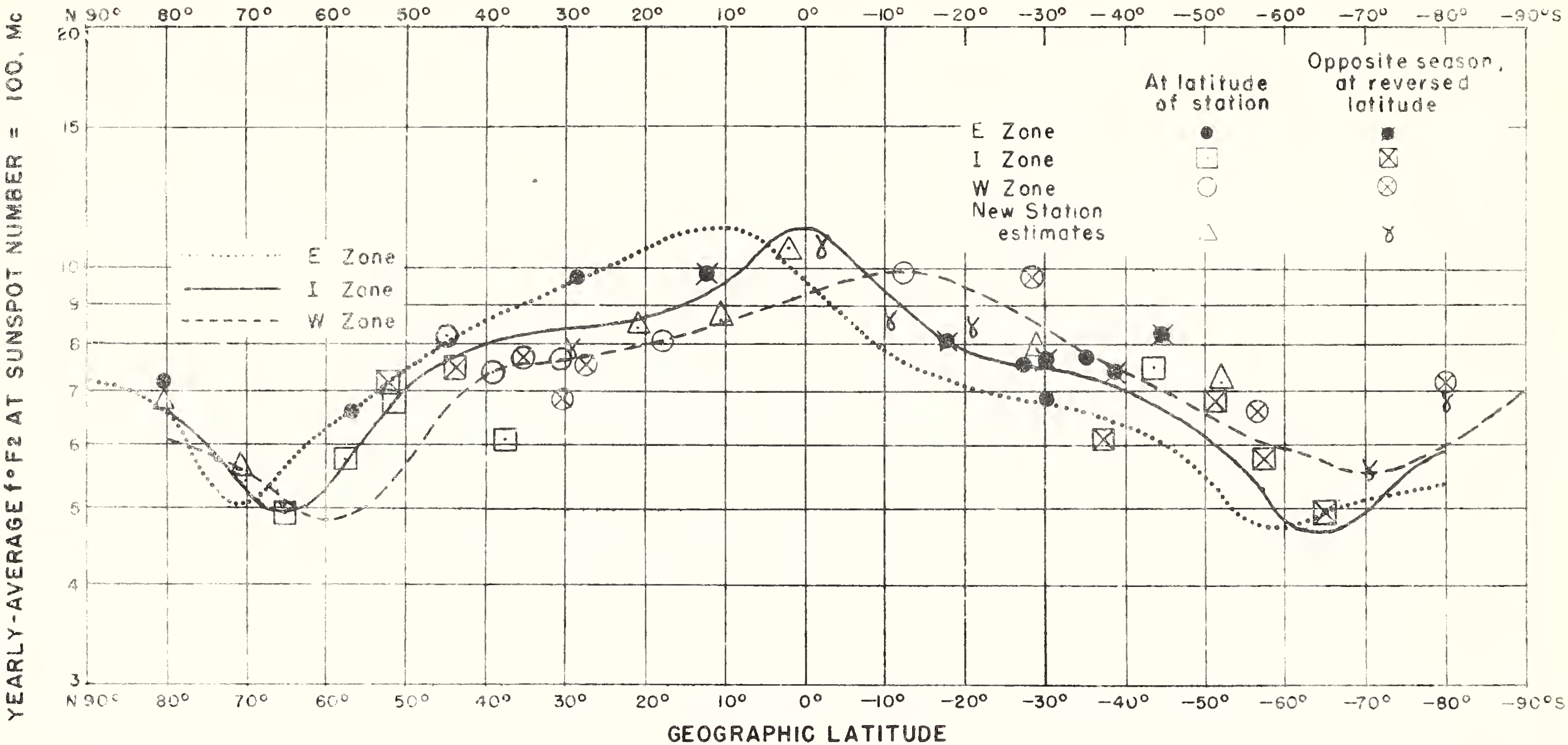


Fig. 56. VARIATION OF f°F2, AT SUNSPOT NUMBER = 100, WITH LATITUDE, 2000 LOCAL TIME.

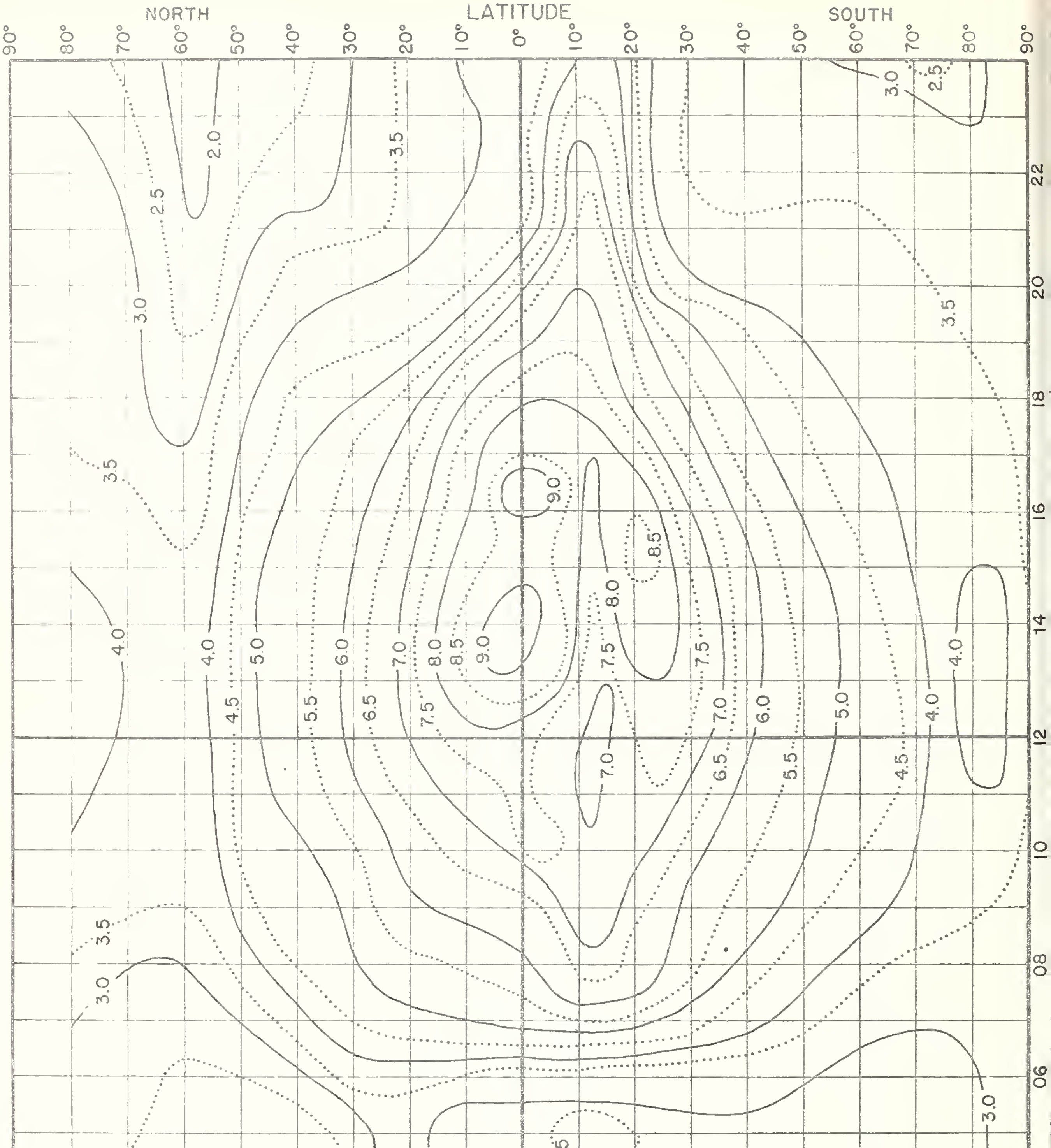


Fig 57 WORLD-WIDE VARIATION OF YEARLY-AVERAGE f°F2, SUNSPOT NUMBER = 0, W ZONE

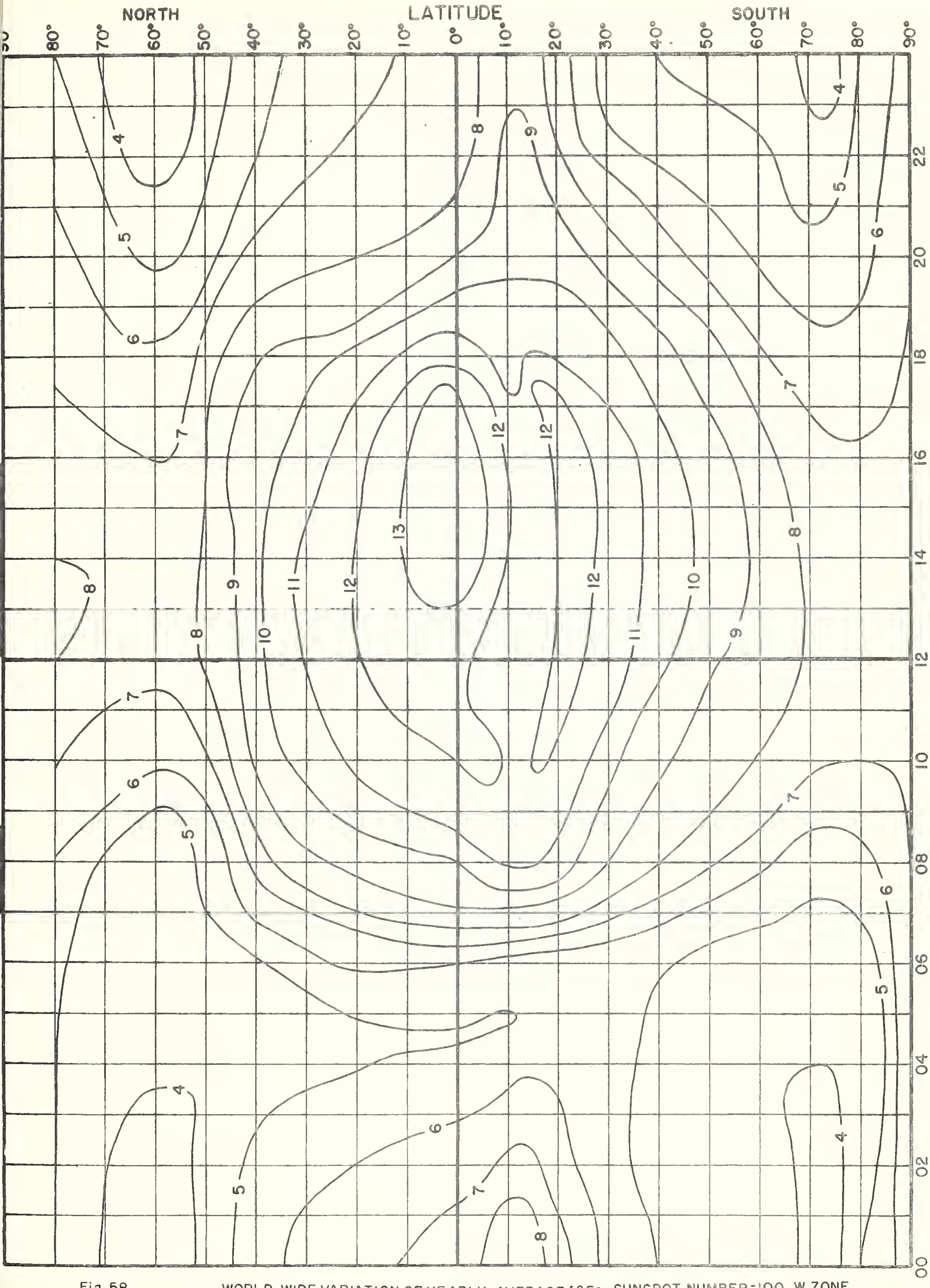


Fig. 58. WORLD-WIDE VARIATION OF YEARLY-AVERAGE f°F2, SUNSPOT NUMBER=100 W ZONE

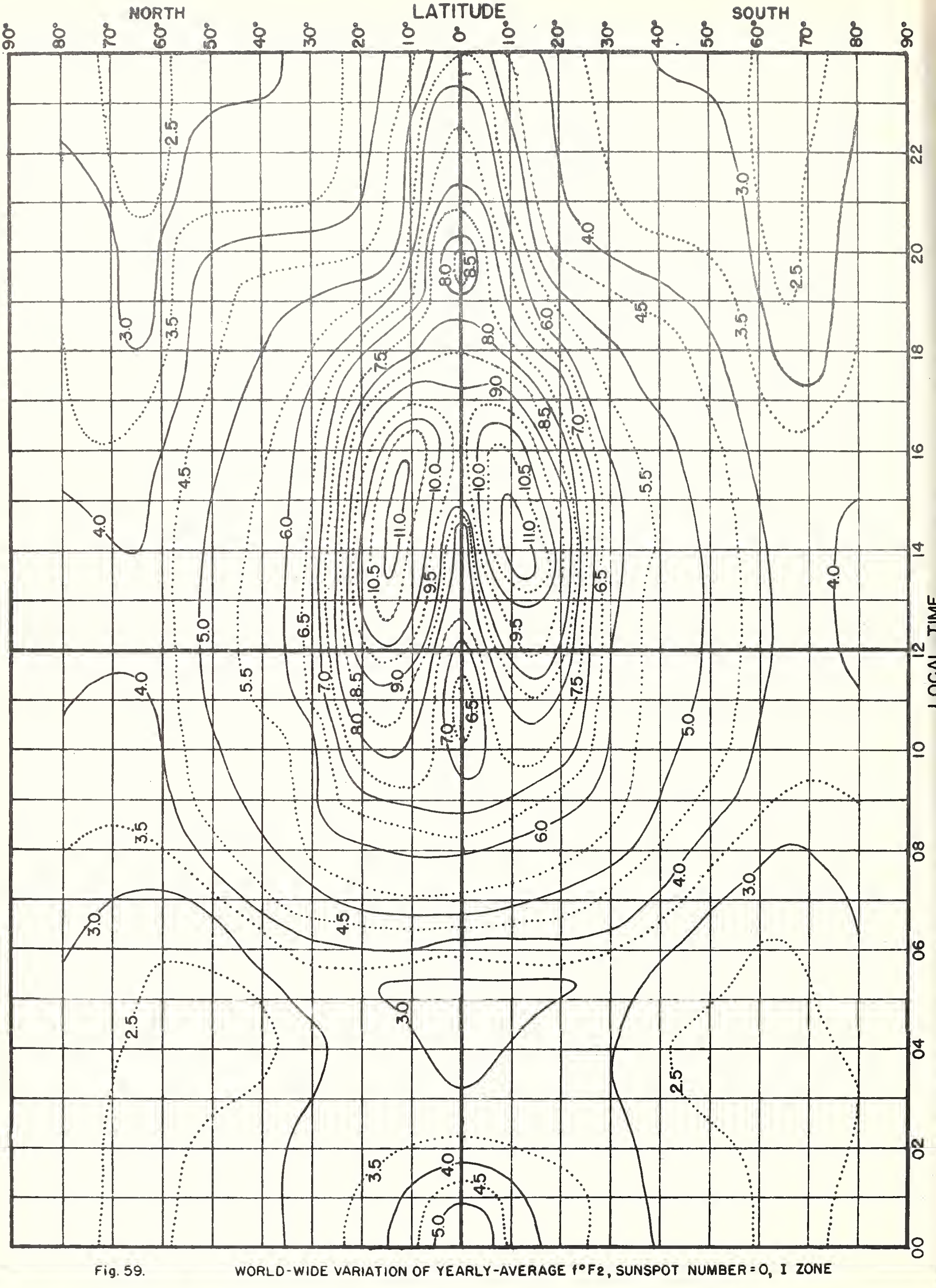


Fig. 59. WORLD-WIDE VARIATION OF YEARLY-AVERAGE f°F2, SUNSPOT NUMBER = 0, I ZONE

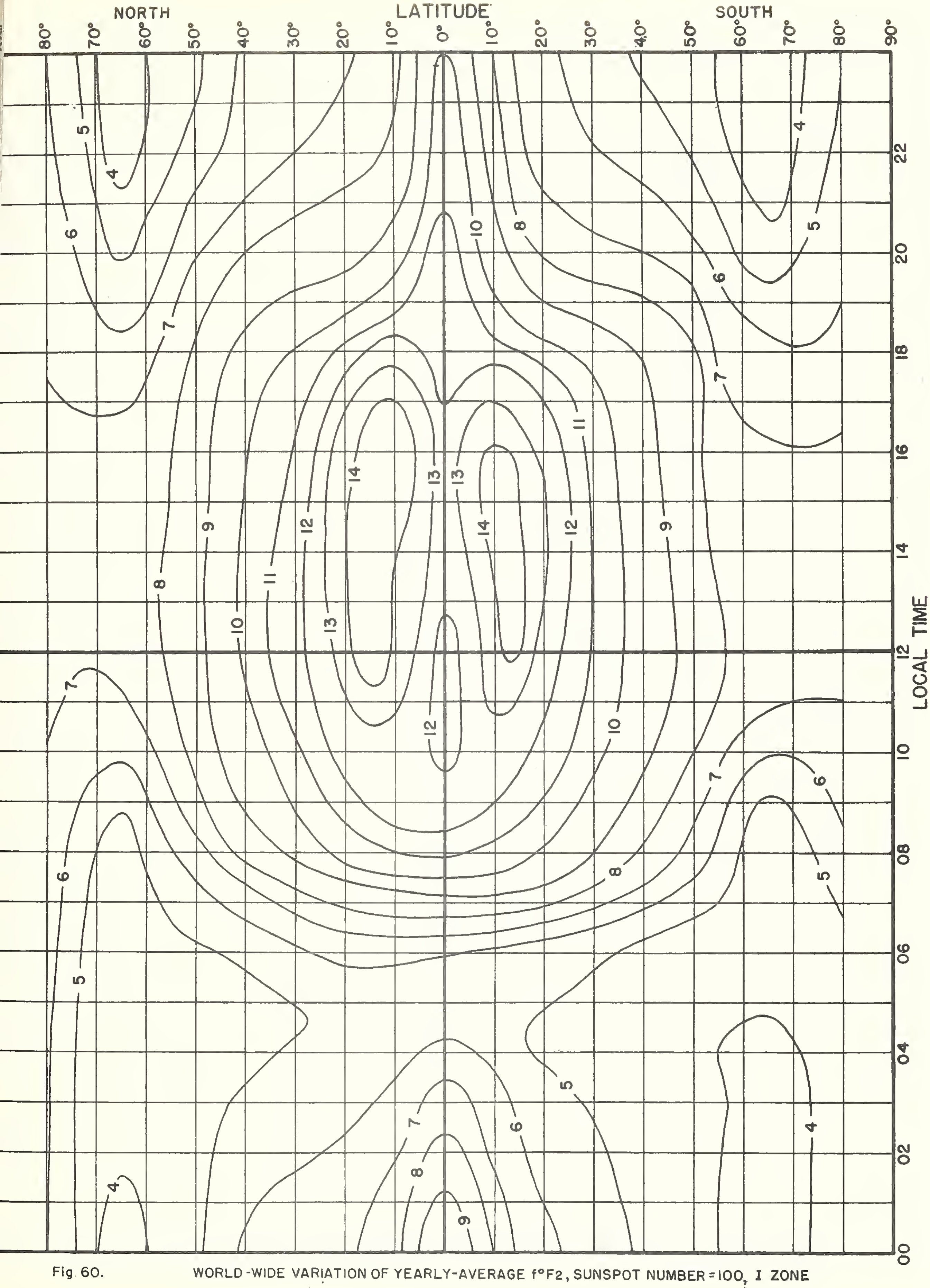


Fig. 60. WORLD-WIDE VARIATION OF YEARLY-AVERAGE f°F2, SUNSPOT NUMBER = 100, I ZONE

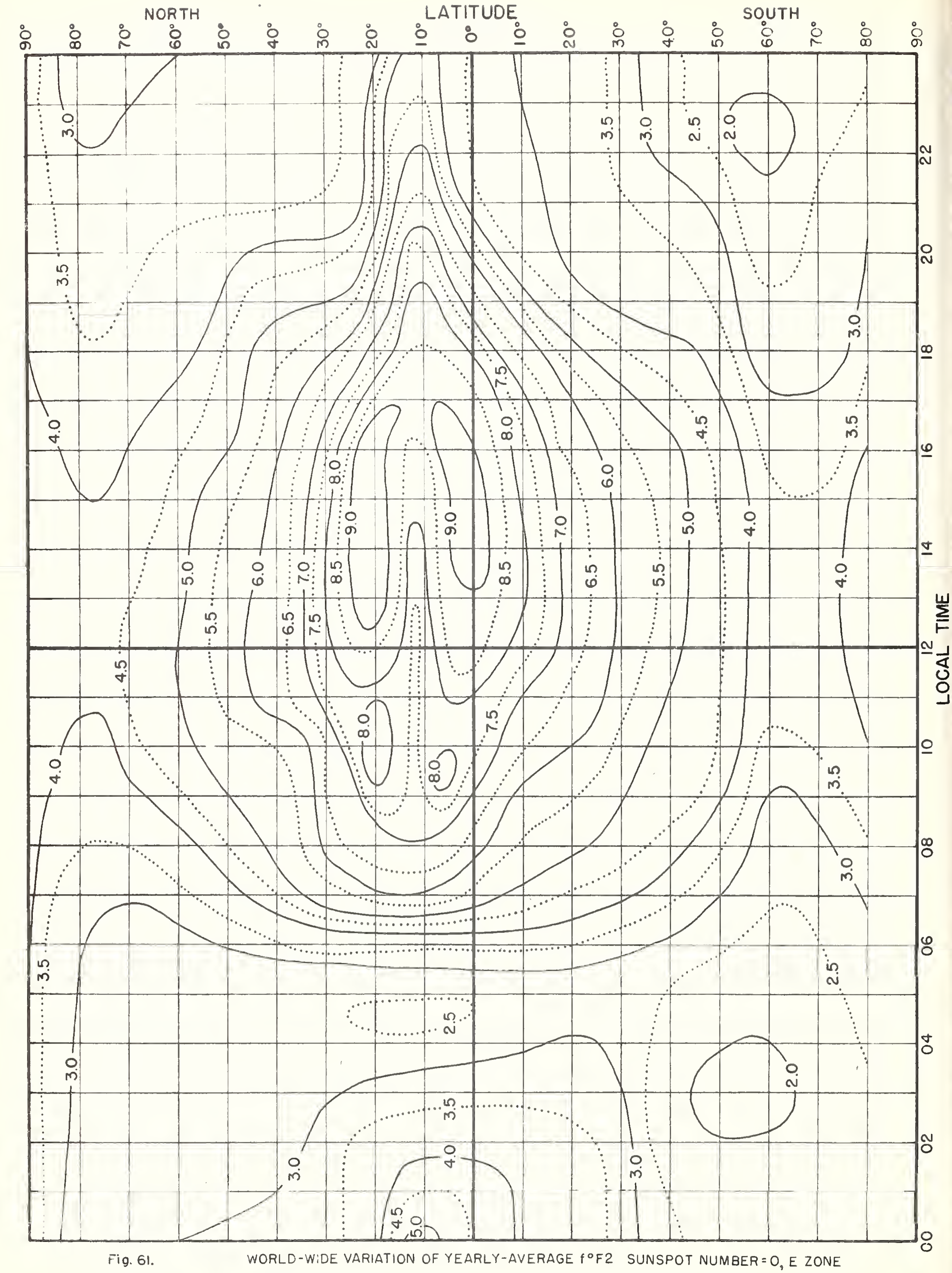


Fig. 61. WORLD-WIDE VARIATION OF YEARLY-AVERAGE f°F2 SUNSPOT NUMBER = 0, E ZONE

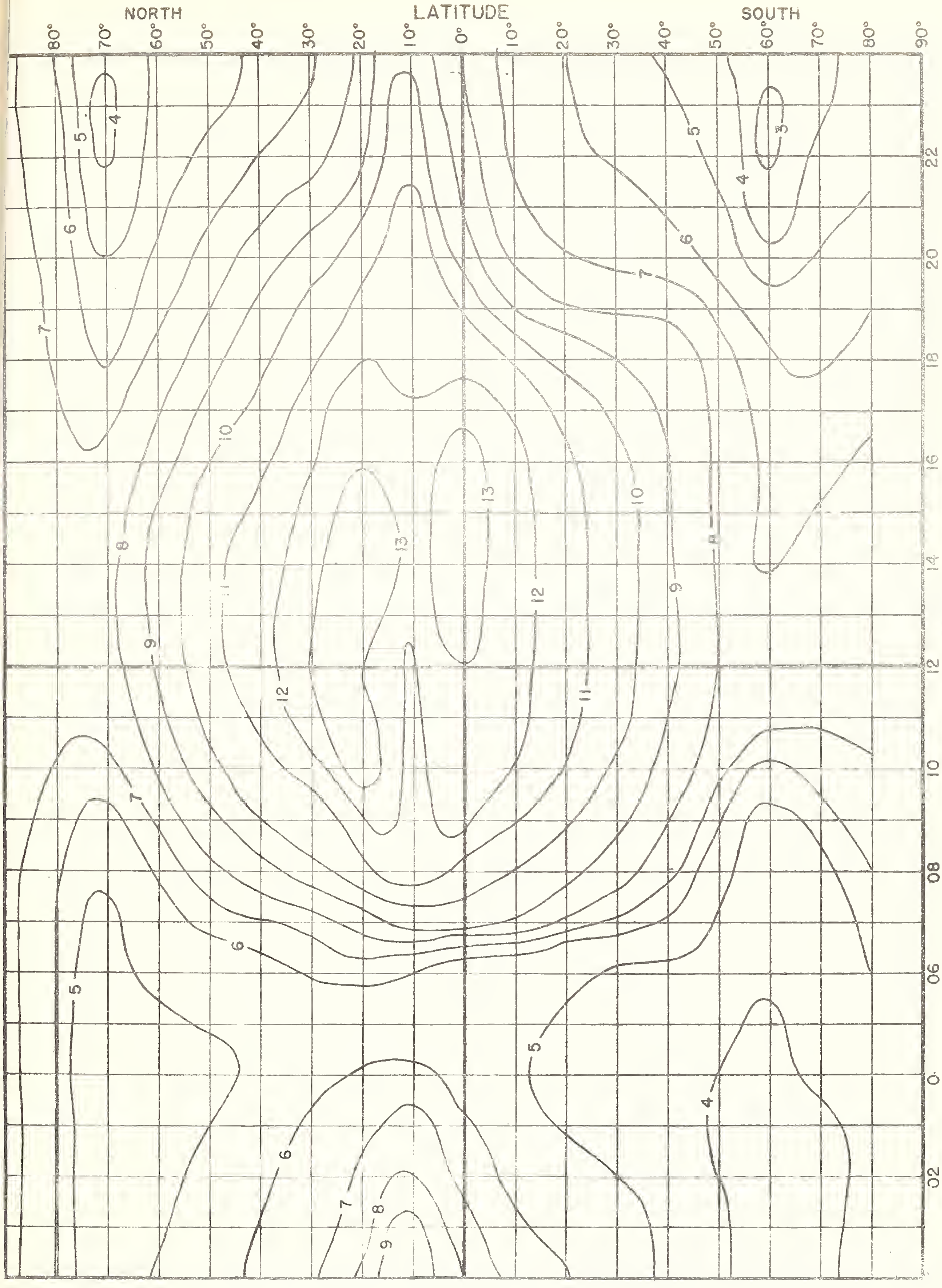


Fig. 62. WORLD-WIDE VARIATION OF YEARLY-AVERAGE f°F2, SUNSPOT NUMBER=100, E ZONE

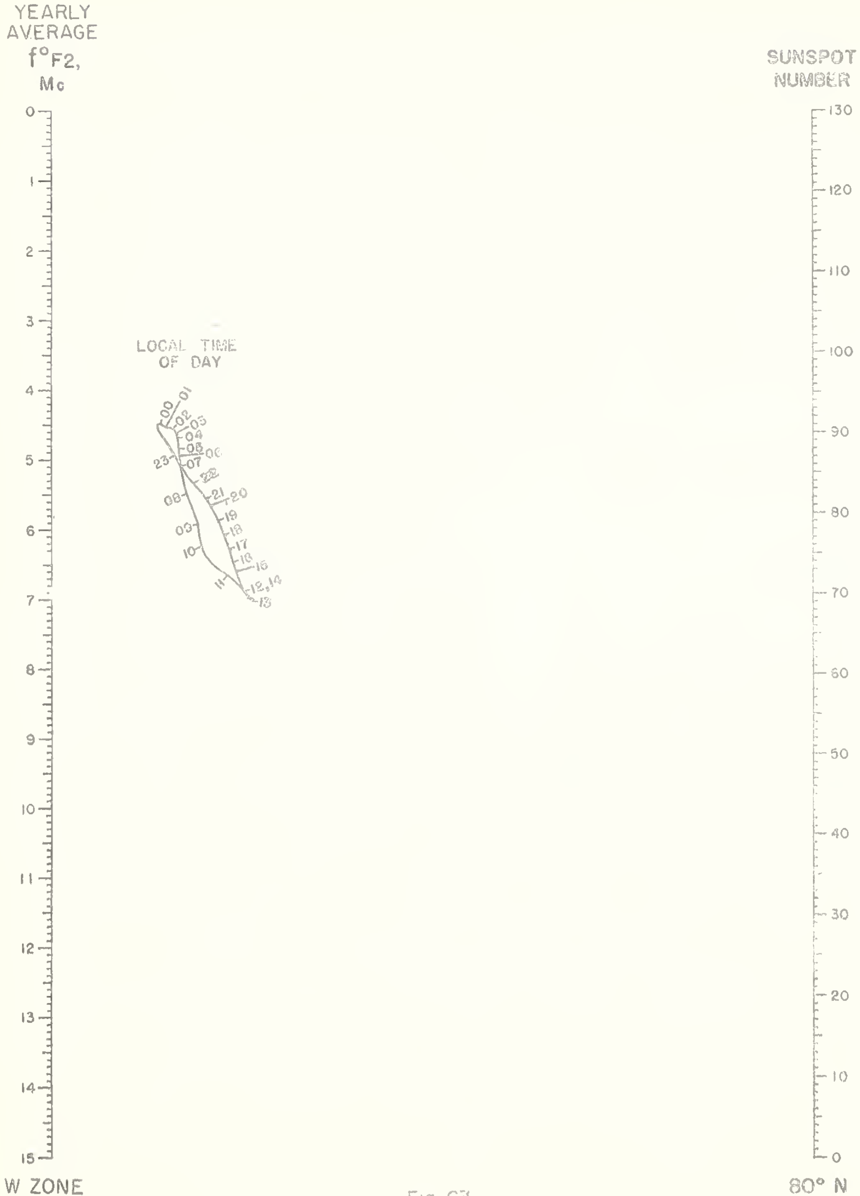

YEARLY AVERAGE
f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
80° N

Fig. 63.

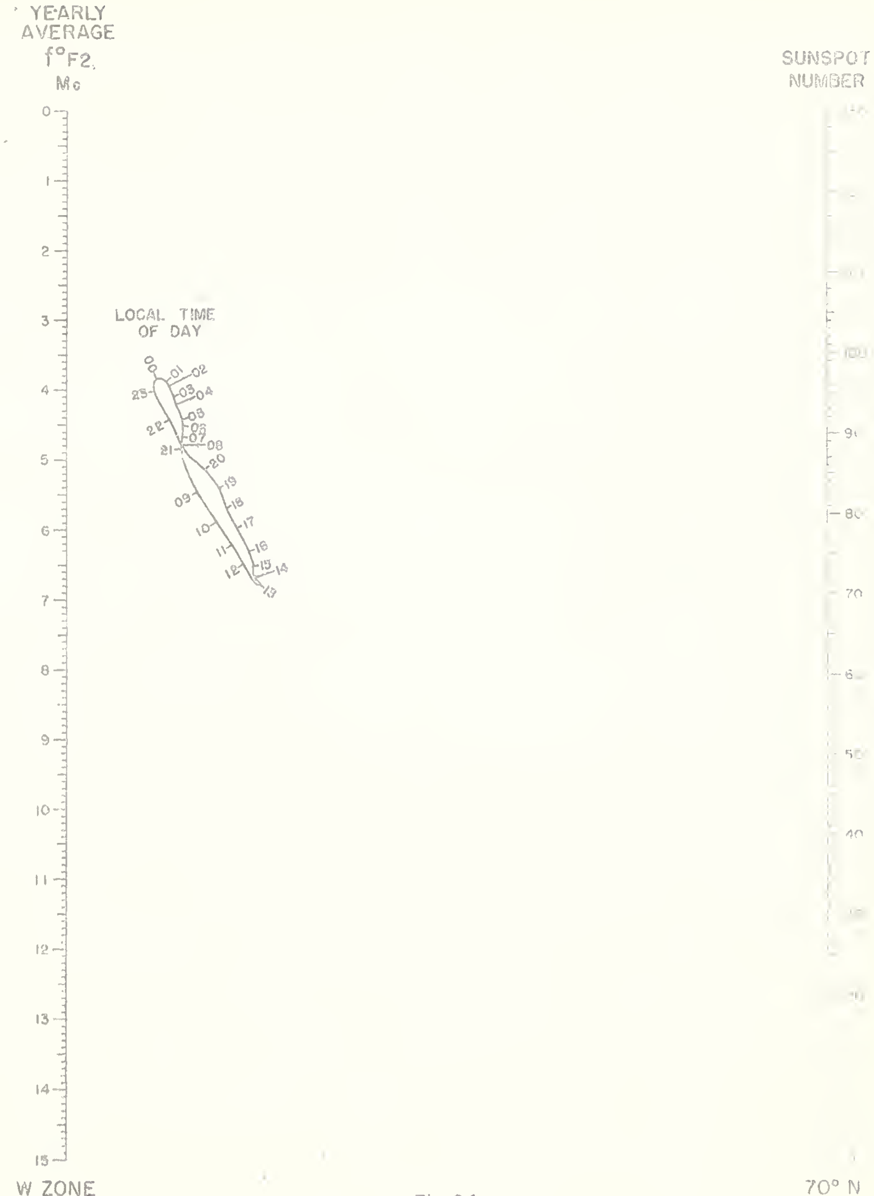

YEARLY AVERAGE
f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
70° N

Fig. 64.

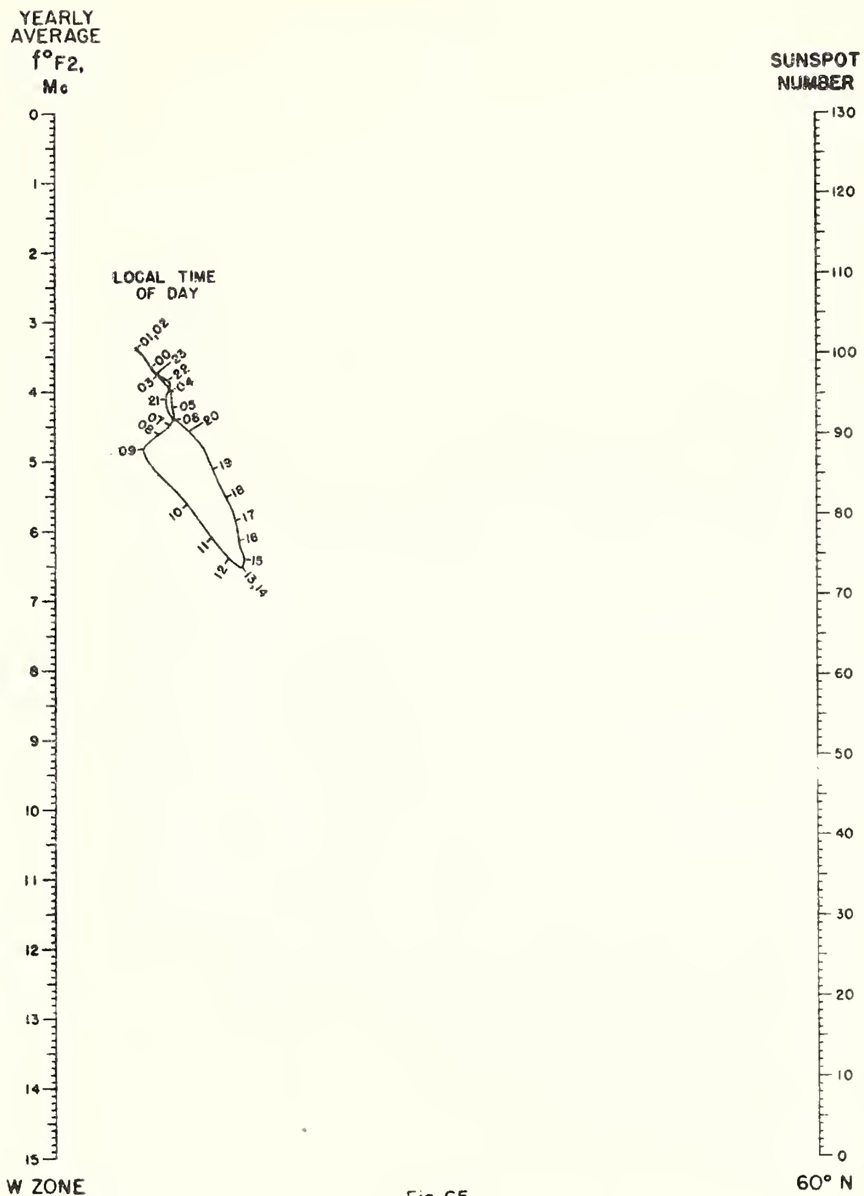

YEARLY AVERAGE f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
60° N

Fig. 65.

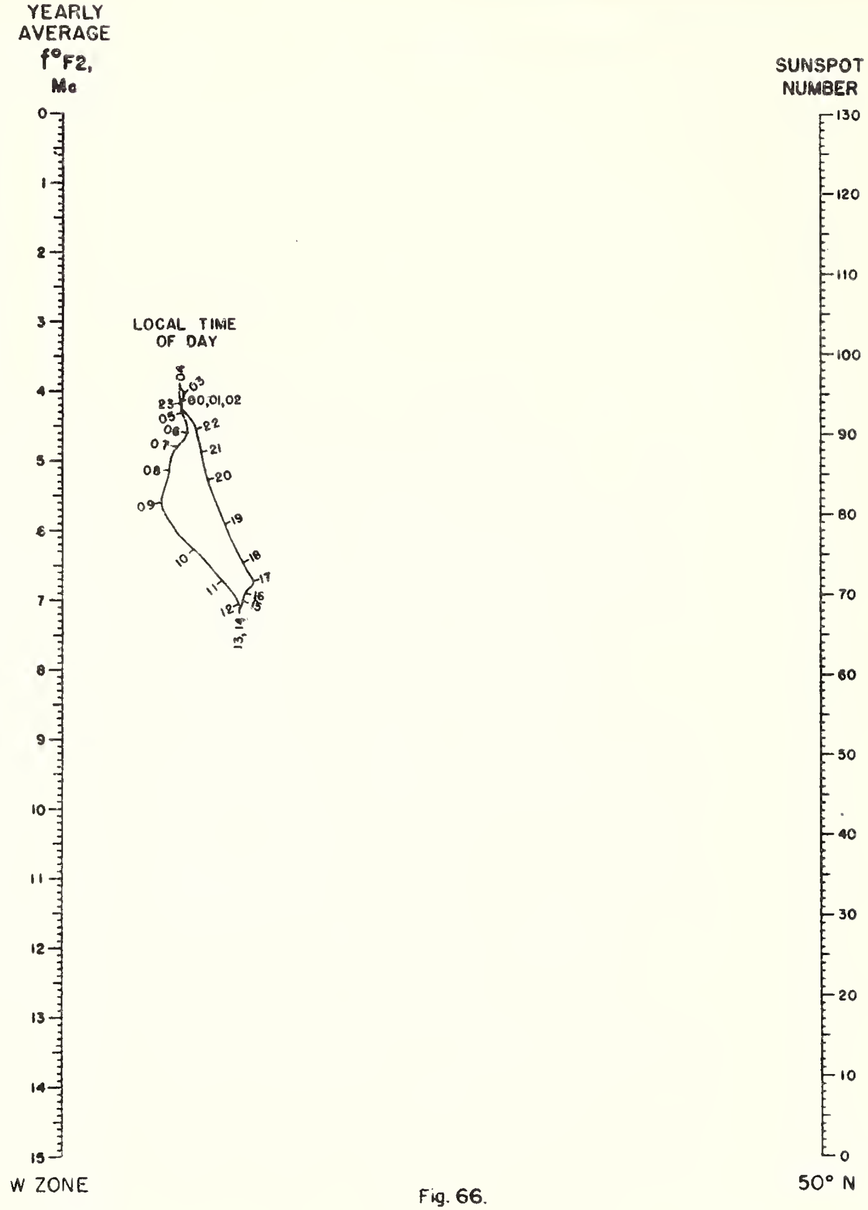

YEARLY AVERAGE f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
50° N

Fig. 66.

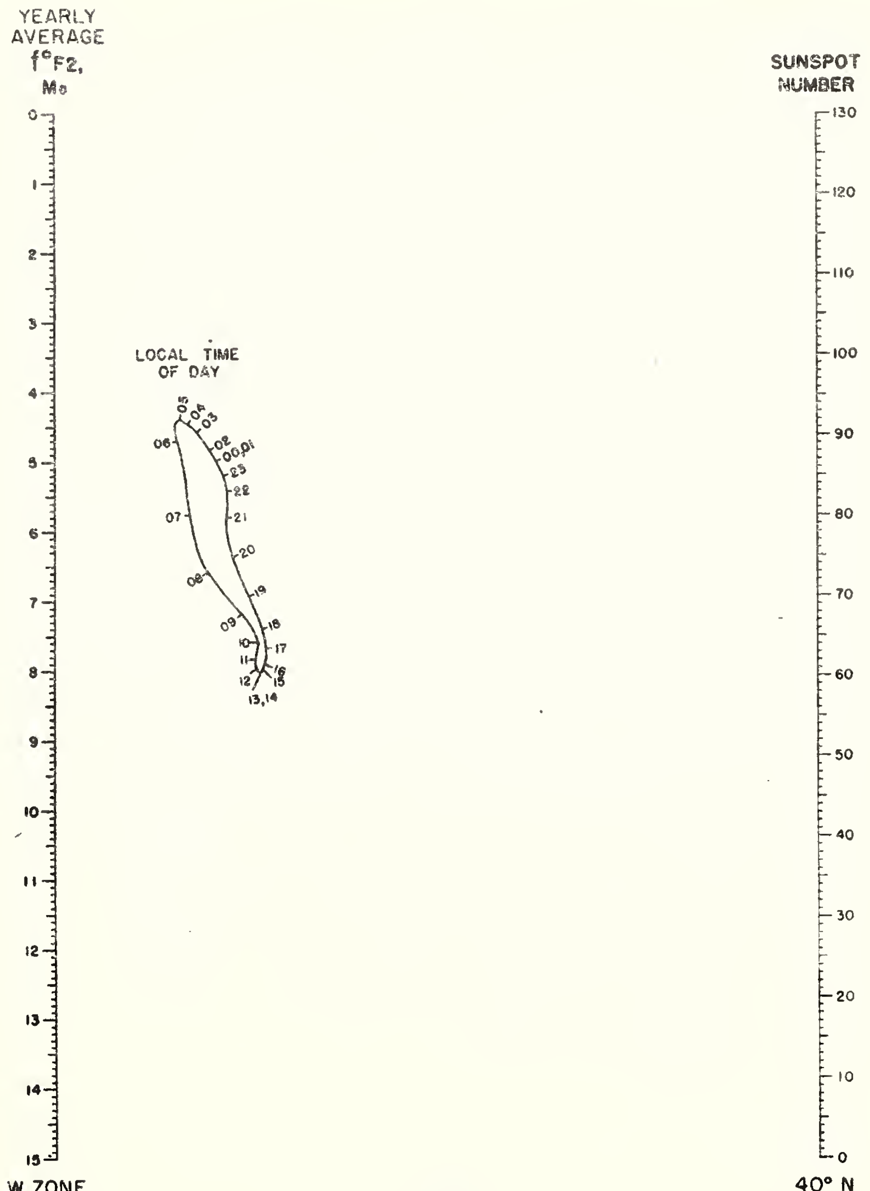

YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
40° N

Fig. 67.

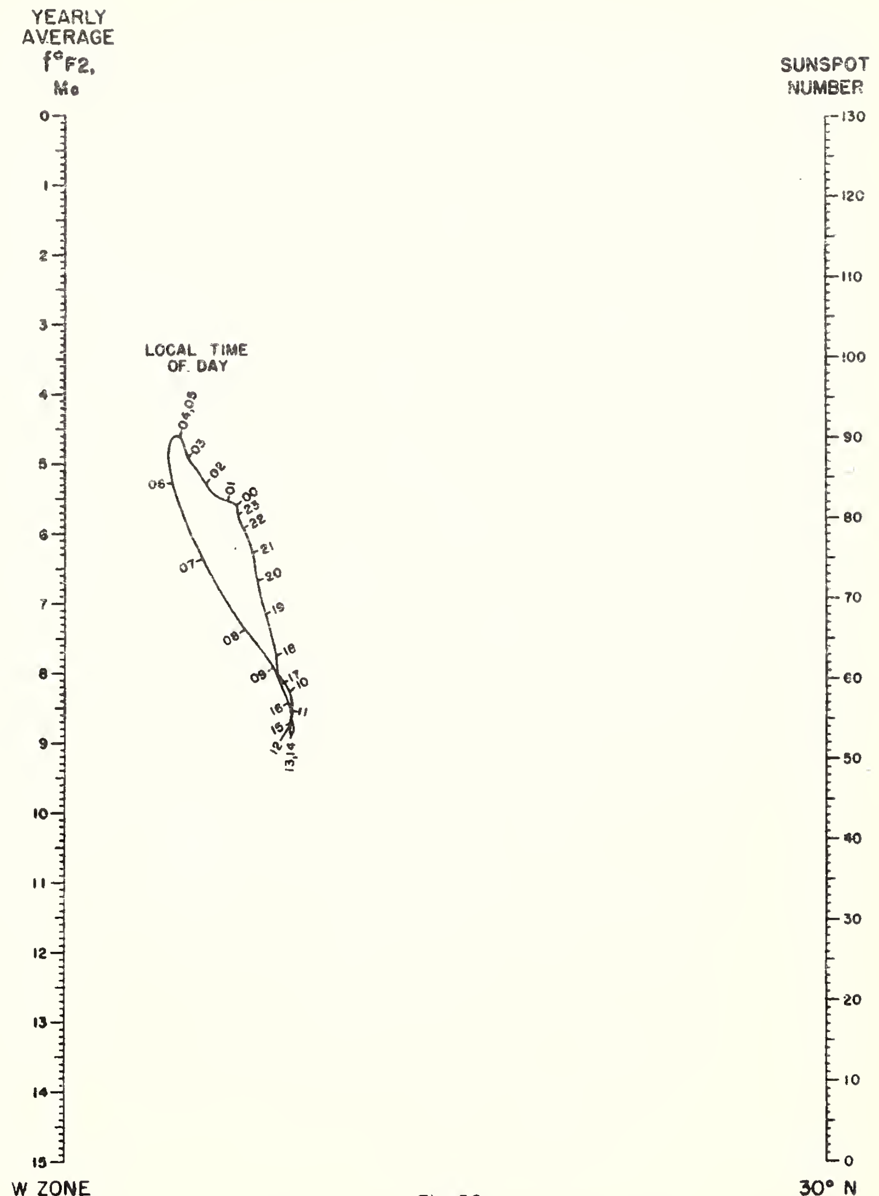

YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
30° N

Fig. 68.

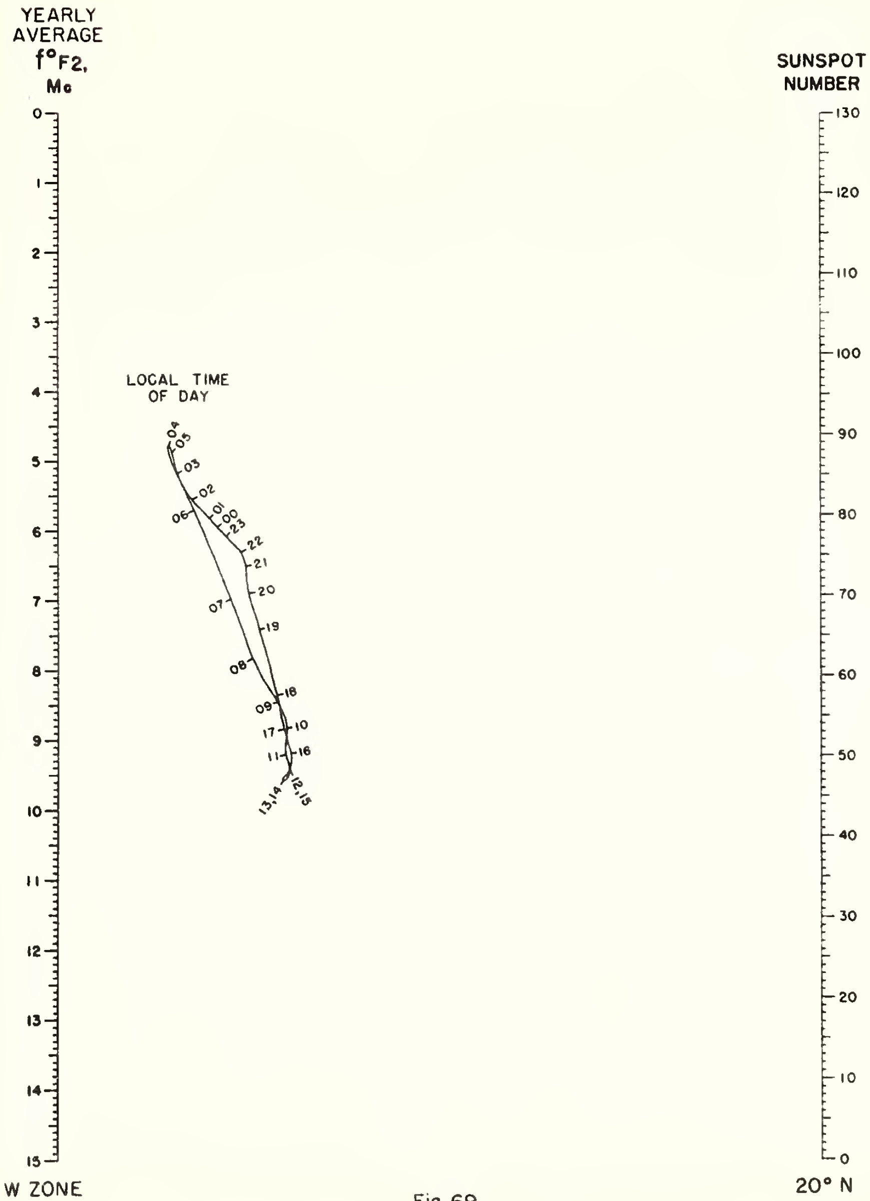

YEARLY AVERAGE
f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
20° N

Fig. 69.

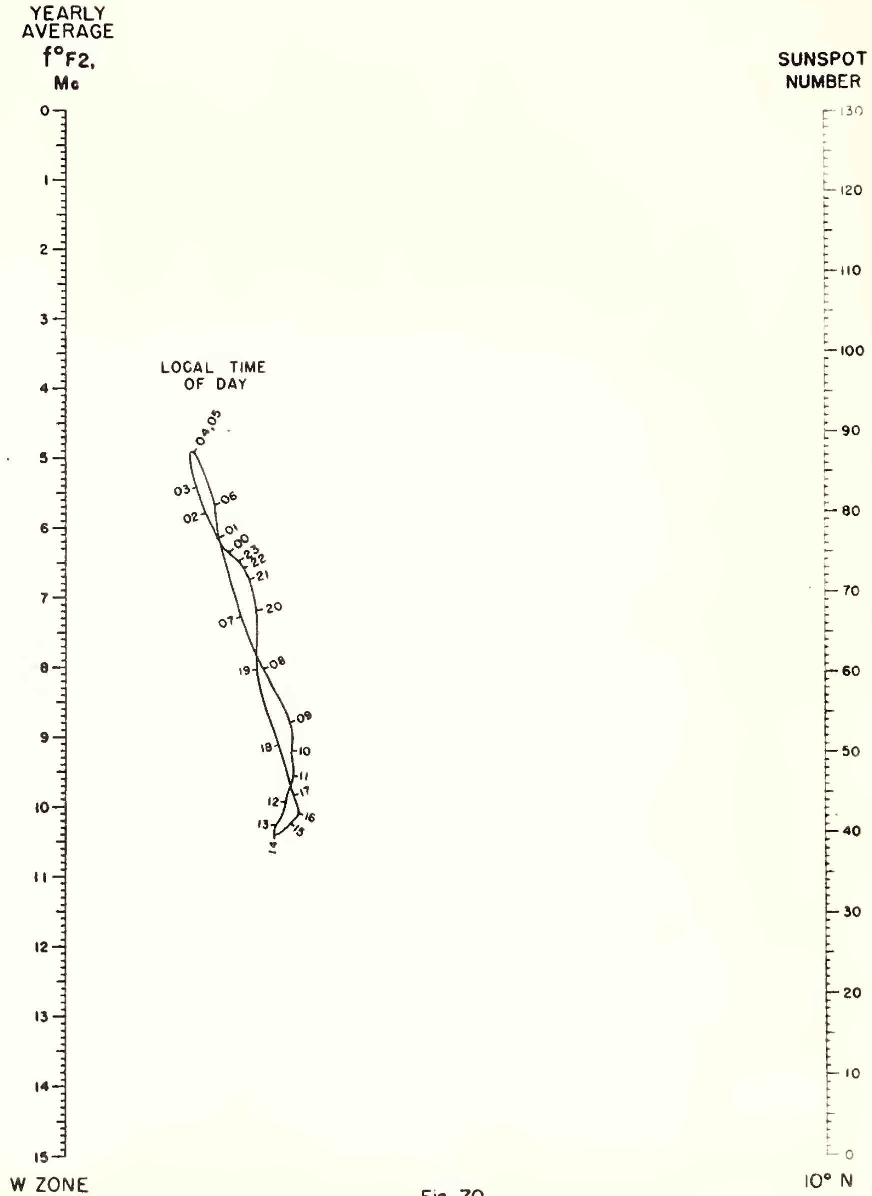

YEARLY AVERAGE
f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
10° N

Fig. 70

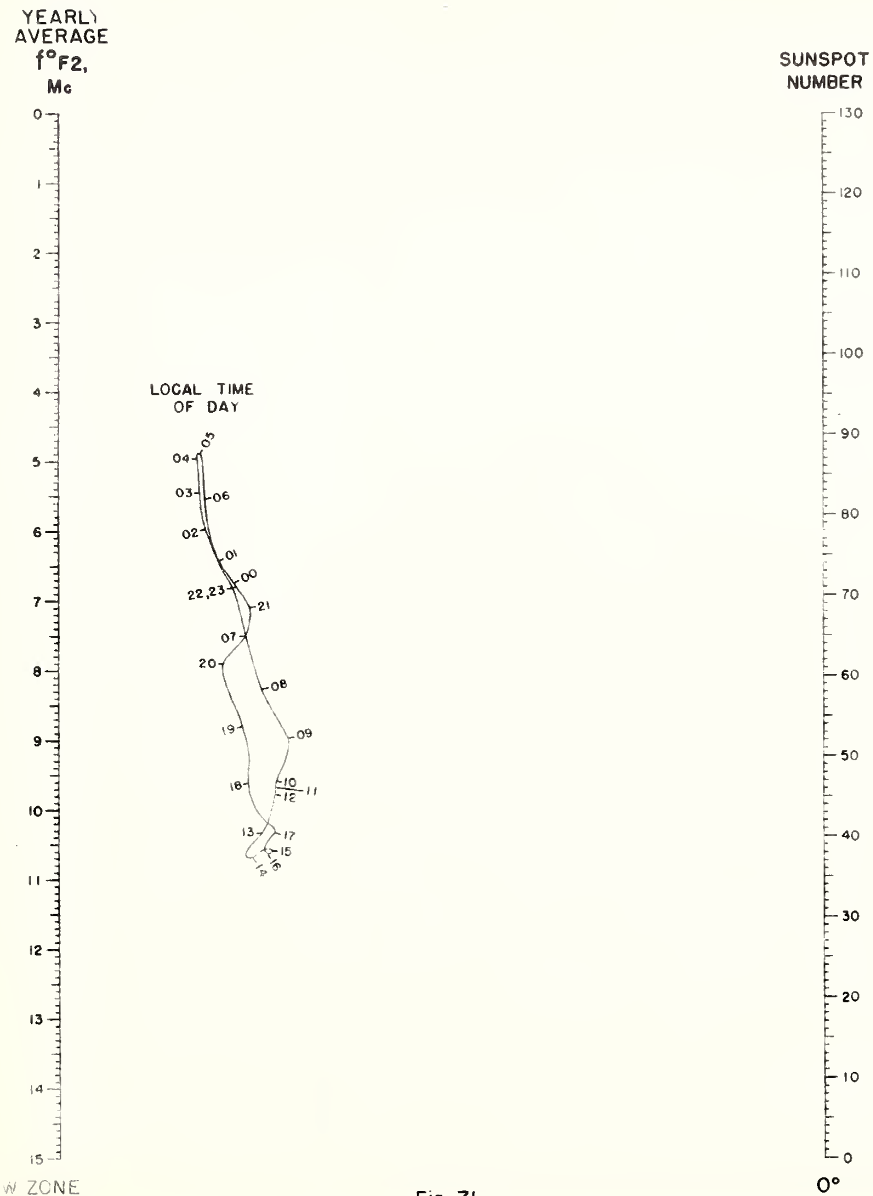

YEARLY AVERAGE
f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
0°

Fig. 71.

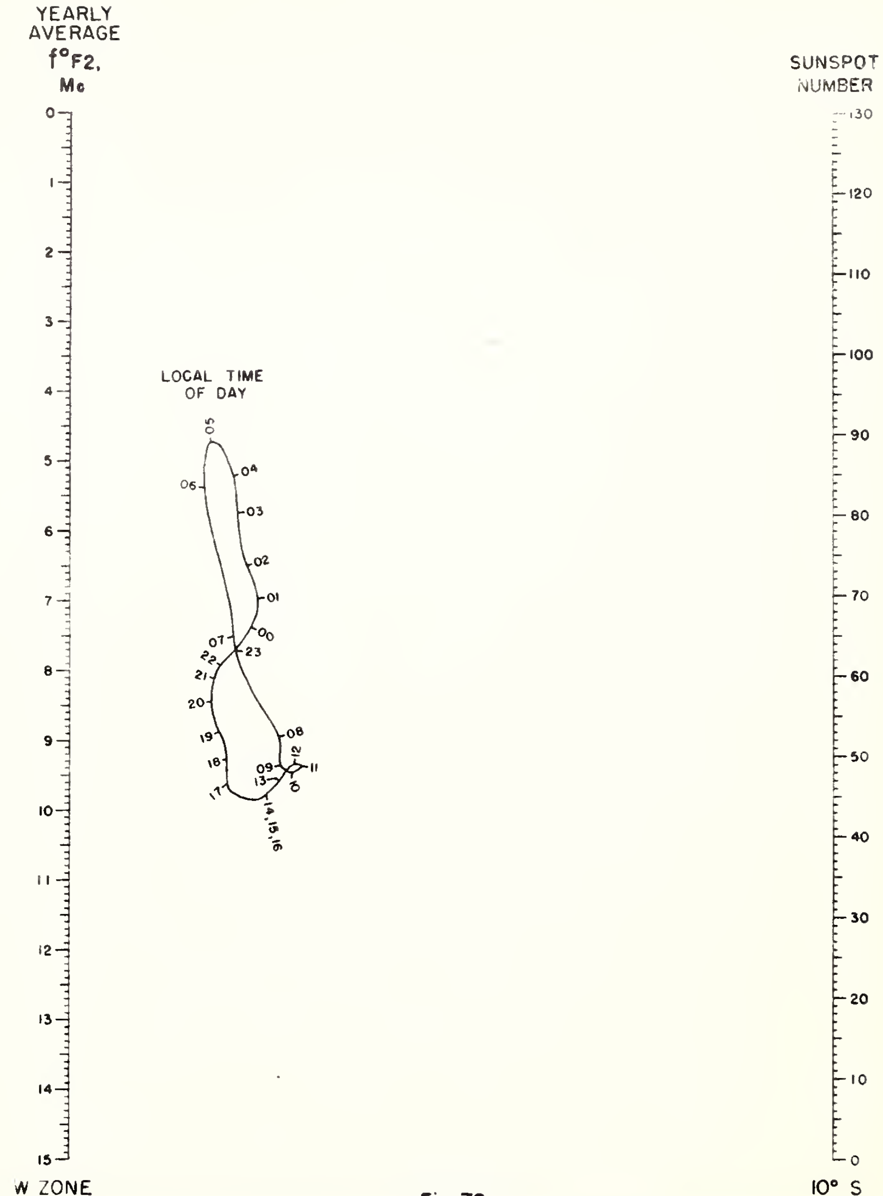

YEARLY AVERAGE
f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
10° S

Fig. 72.

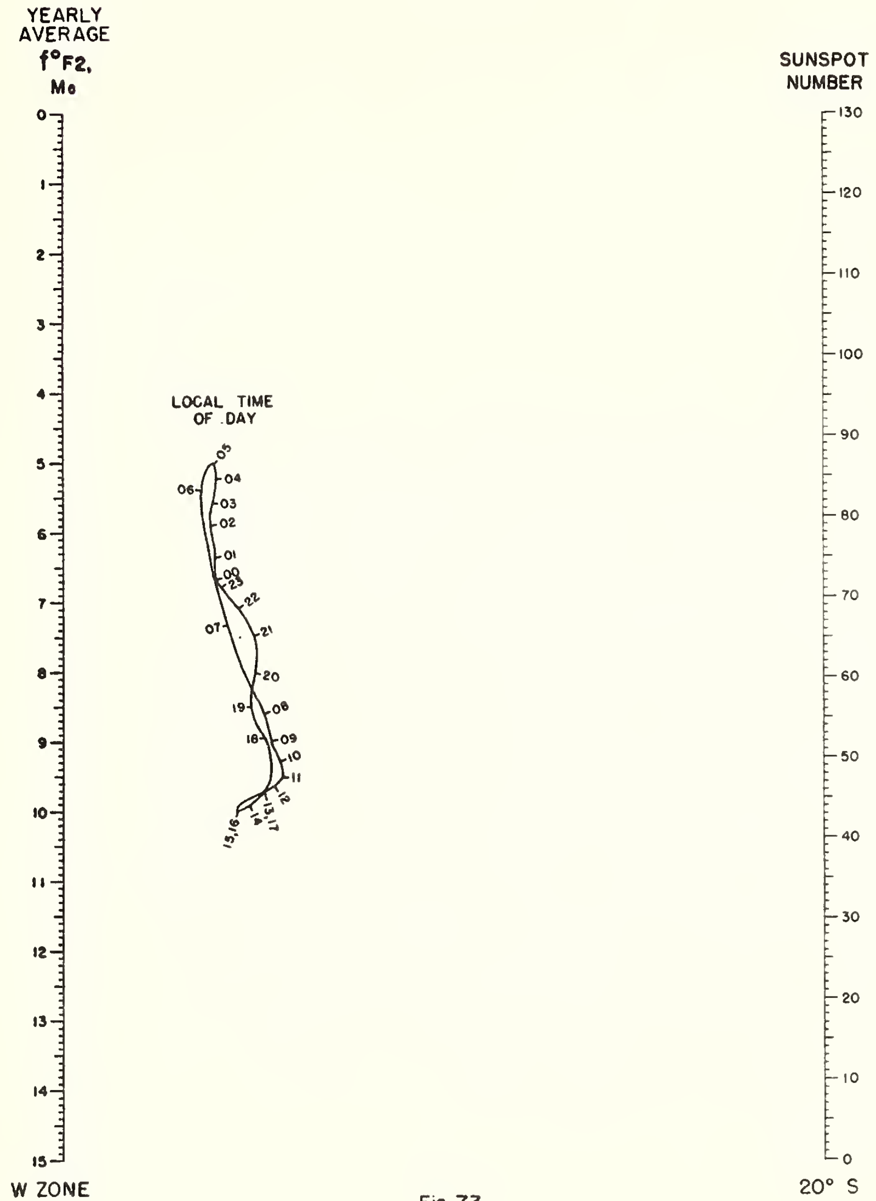

YEARLY AVERAGE f^oF2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
W ZONE
20° S

Fig. 73.

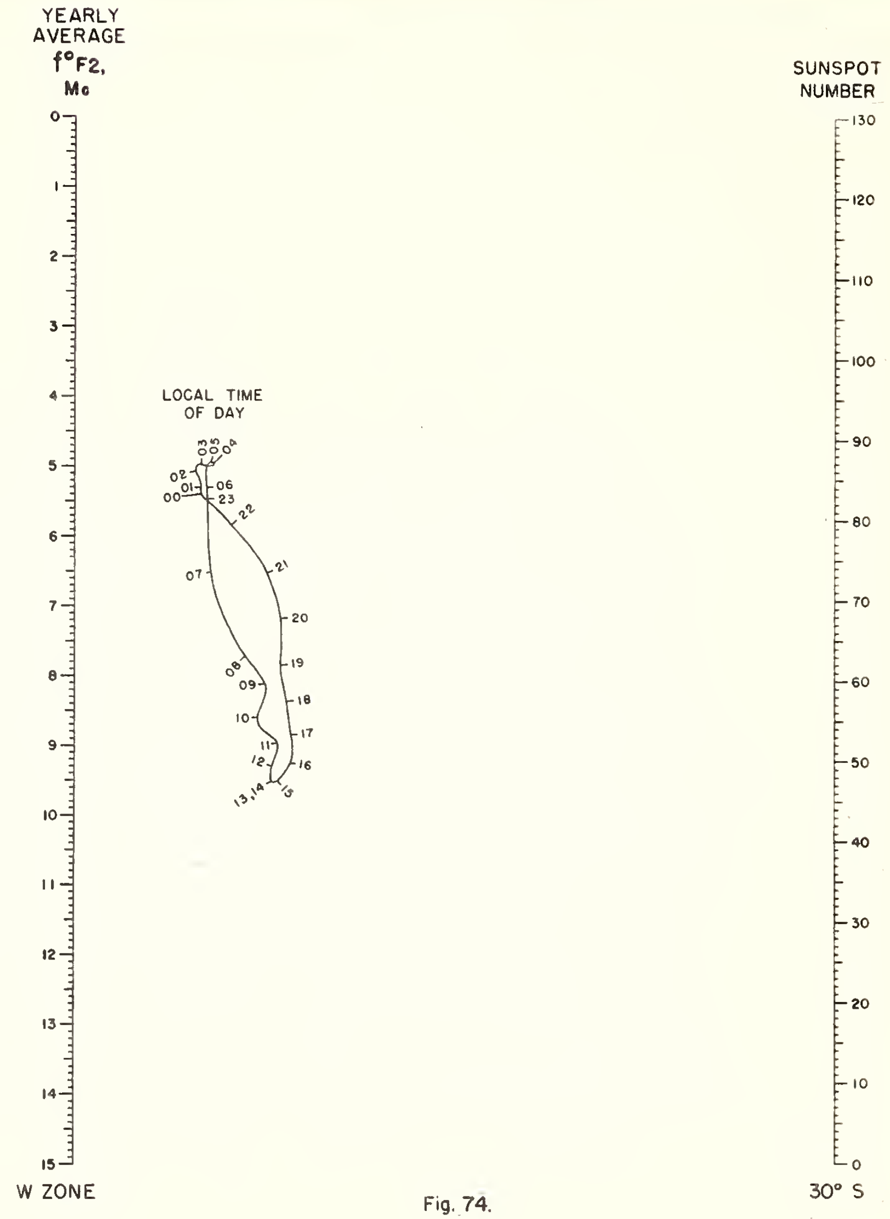
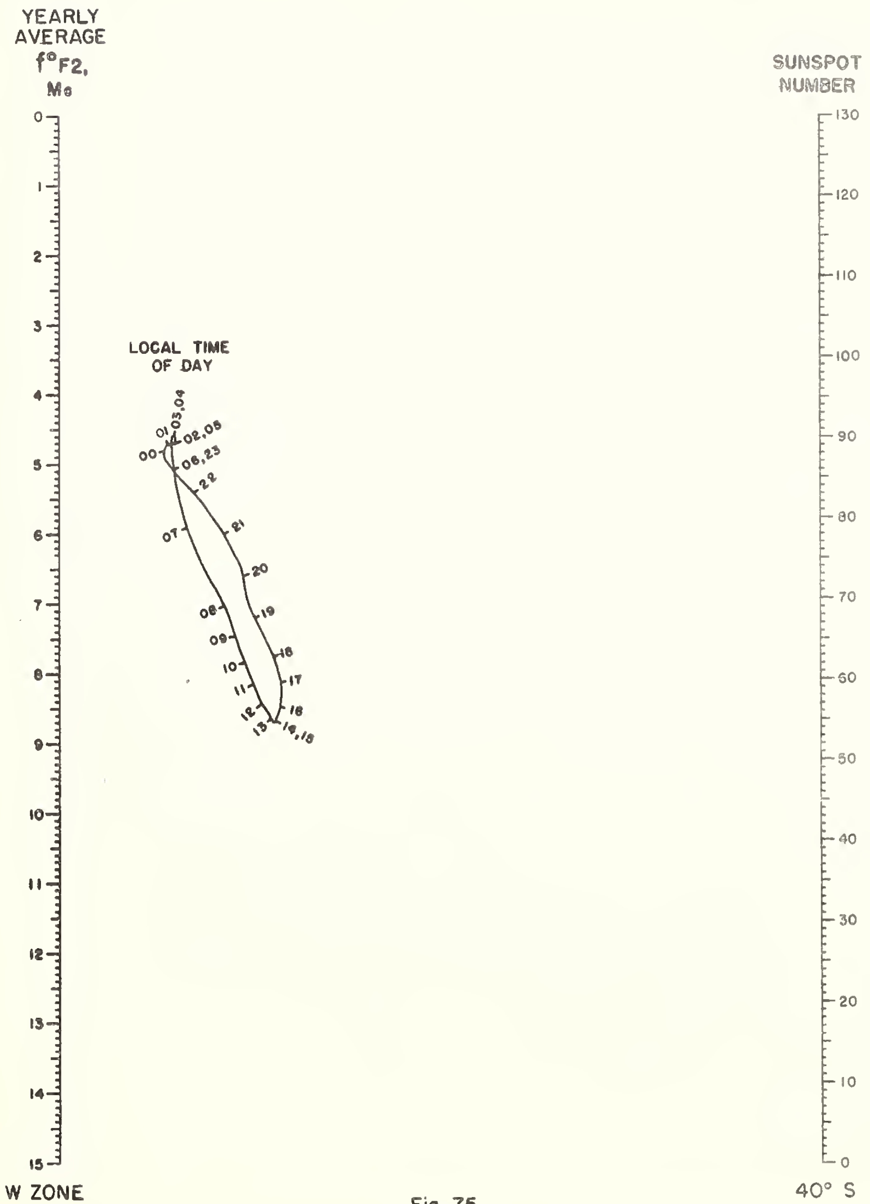
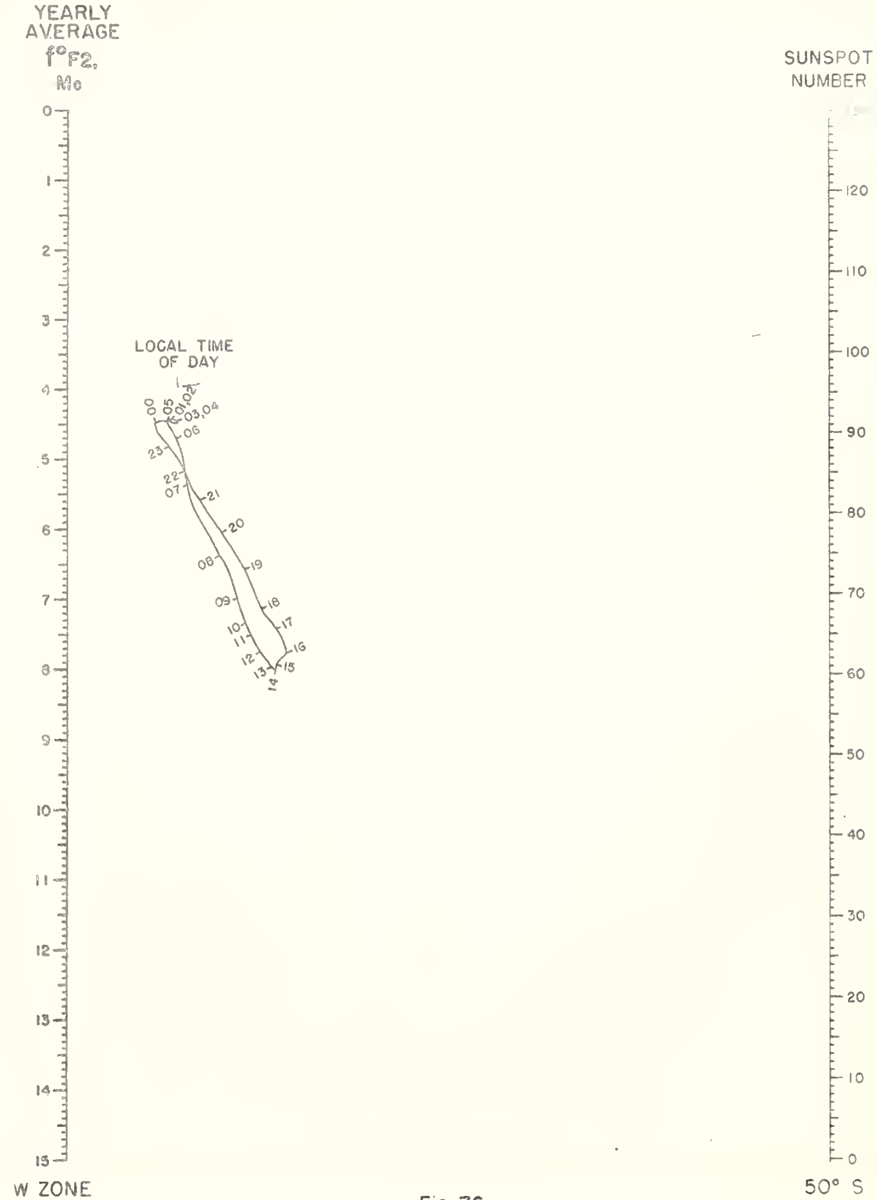

YEARLY AVERAGE f^oF2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
W ZONE
30° S

Fig. 74.



YEARLY AVERAGE
f°F2,
Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
40° S

Fig. 75.



YEARLY AVERAGE
f°F2,
Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
50° S

Fig. 76.

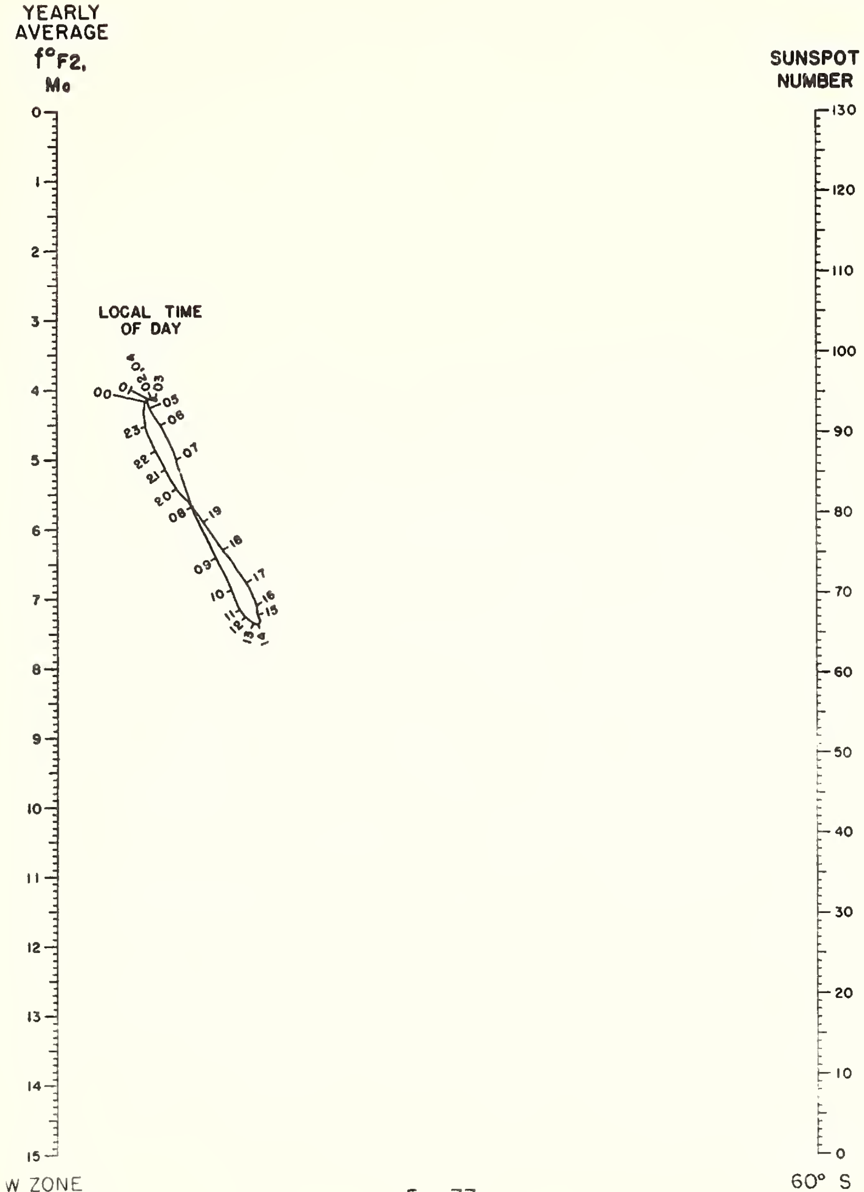

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
W ZONE
60° S

Fig. 77

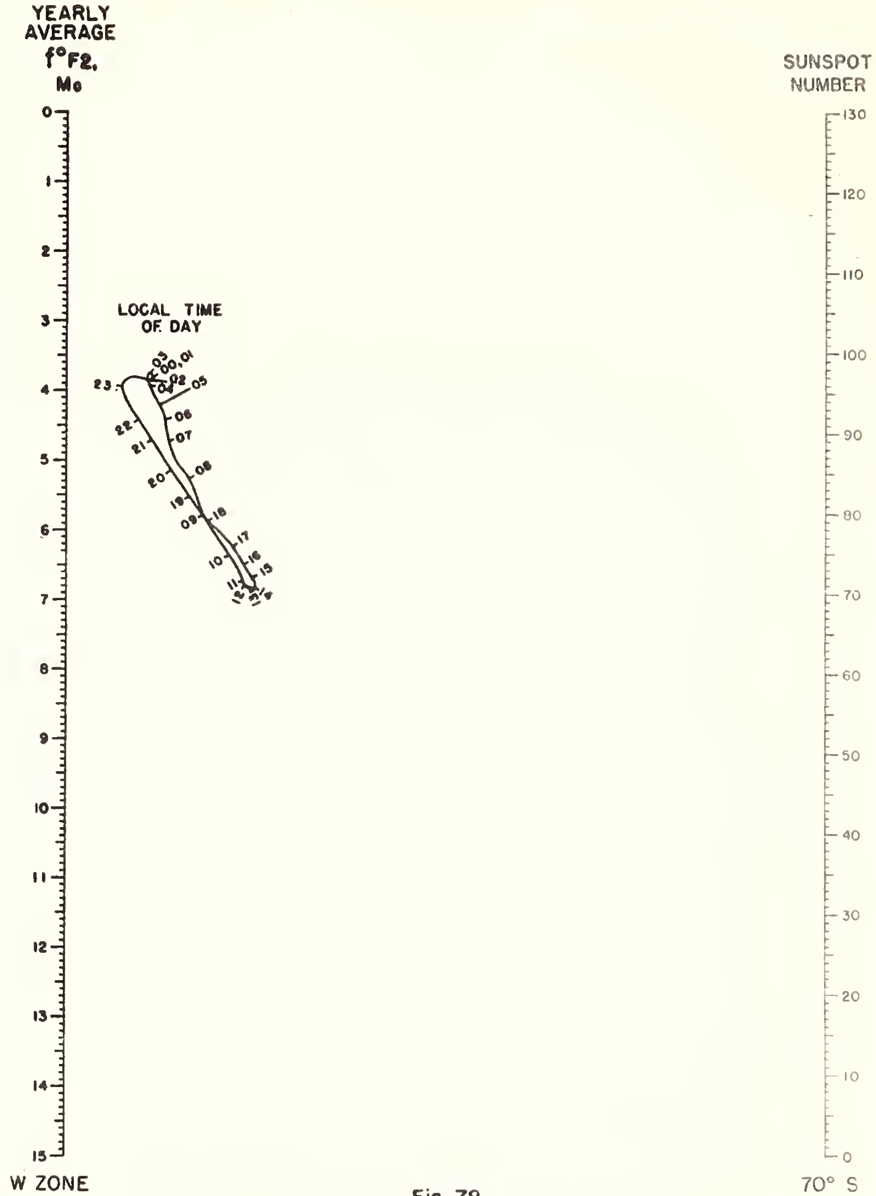

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
W ZONE
70° S

Fig. 78.

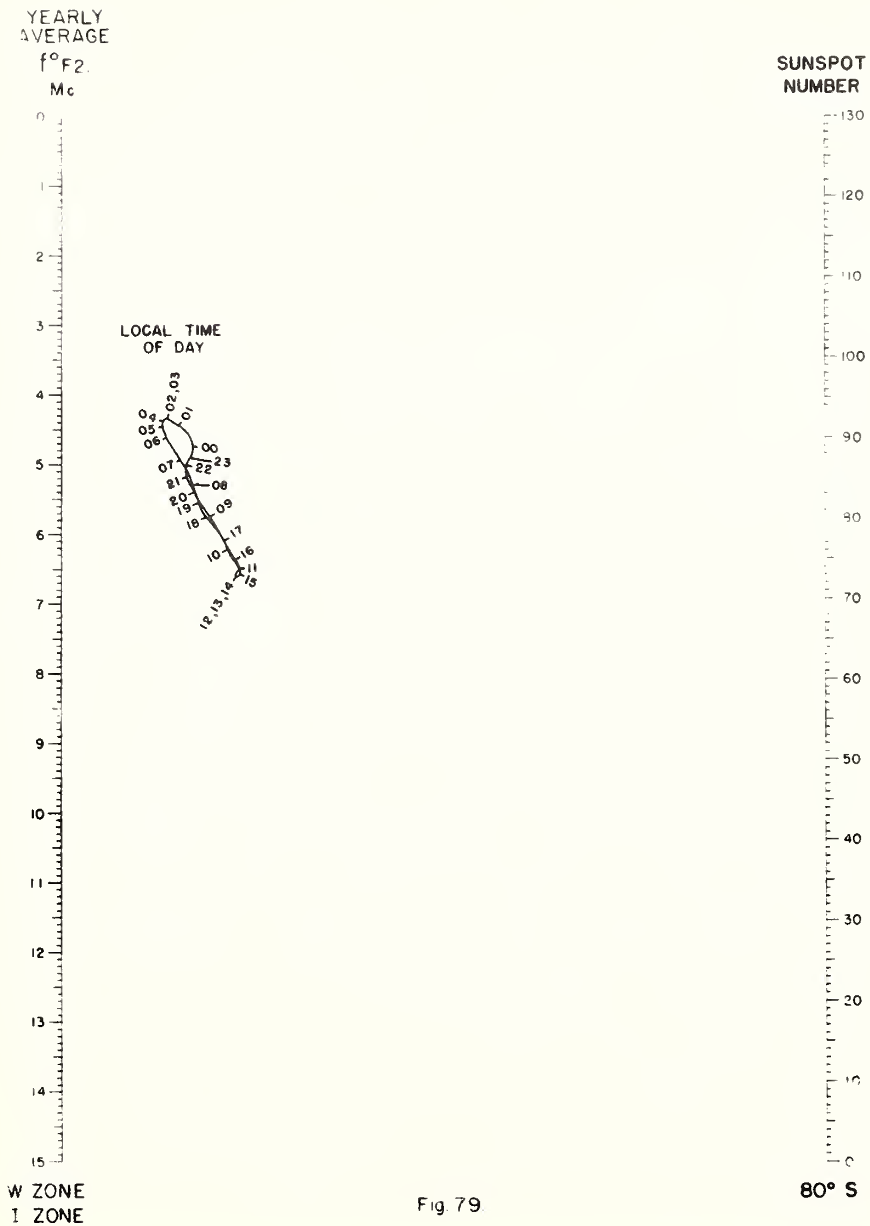

YEARLY AVERAGE
f°F2.
Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
W ZONE
I ZONE
80° S

Fig. 79

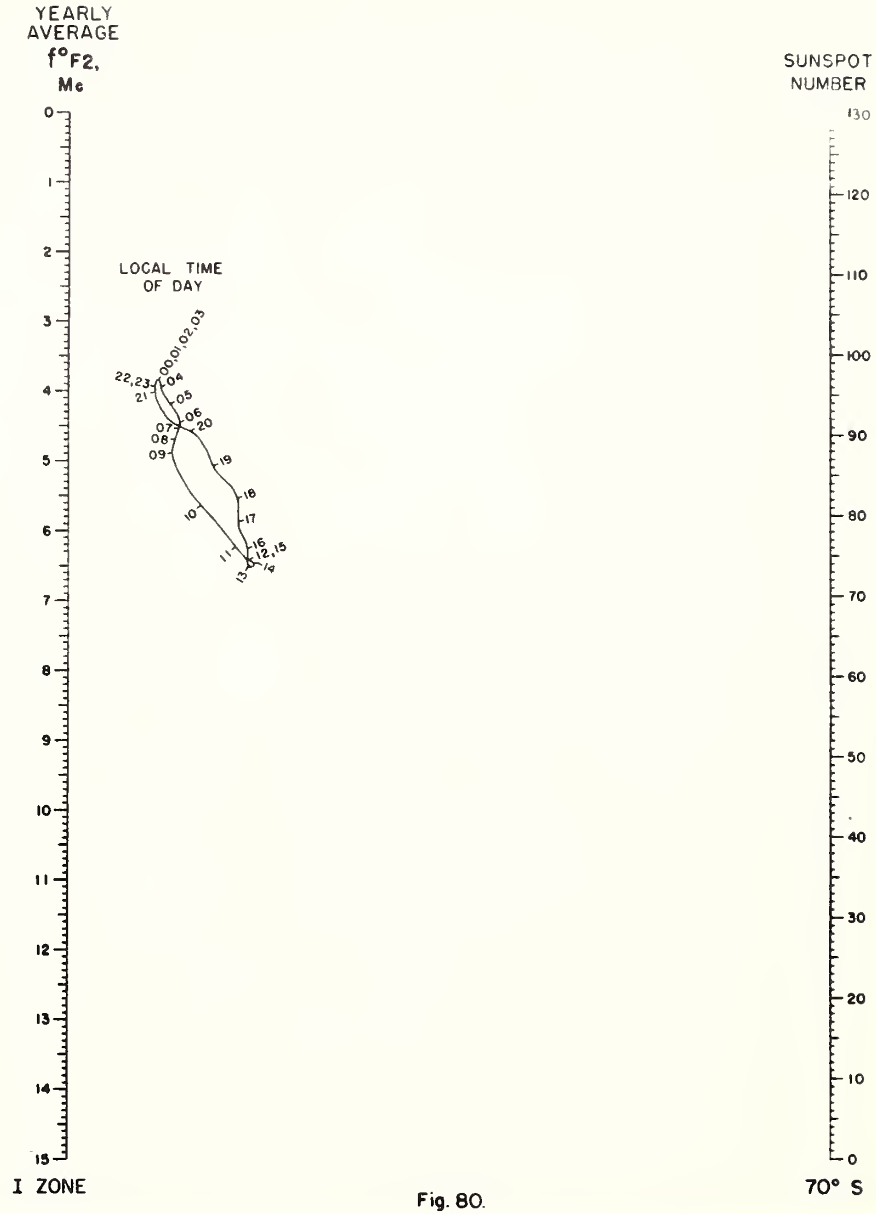
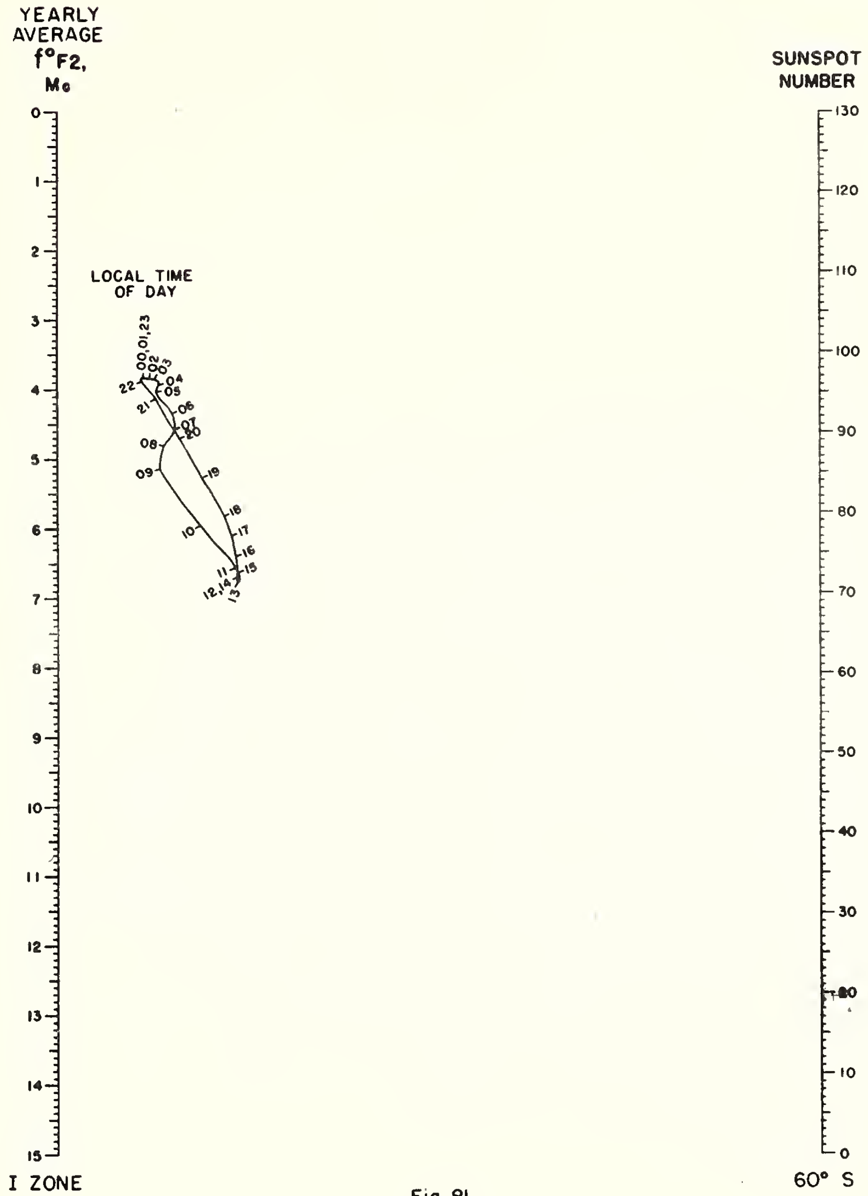
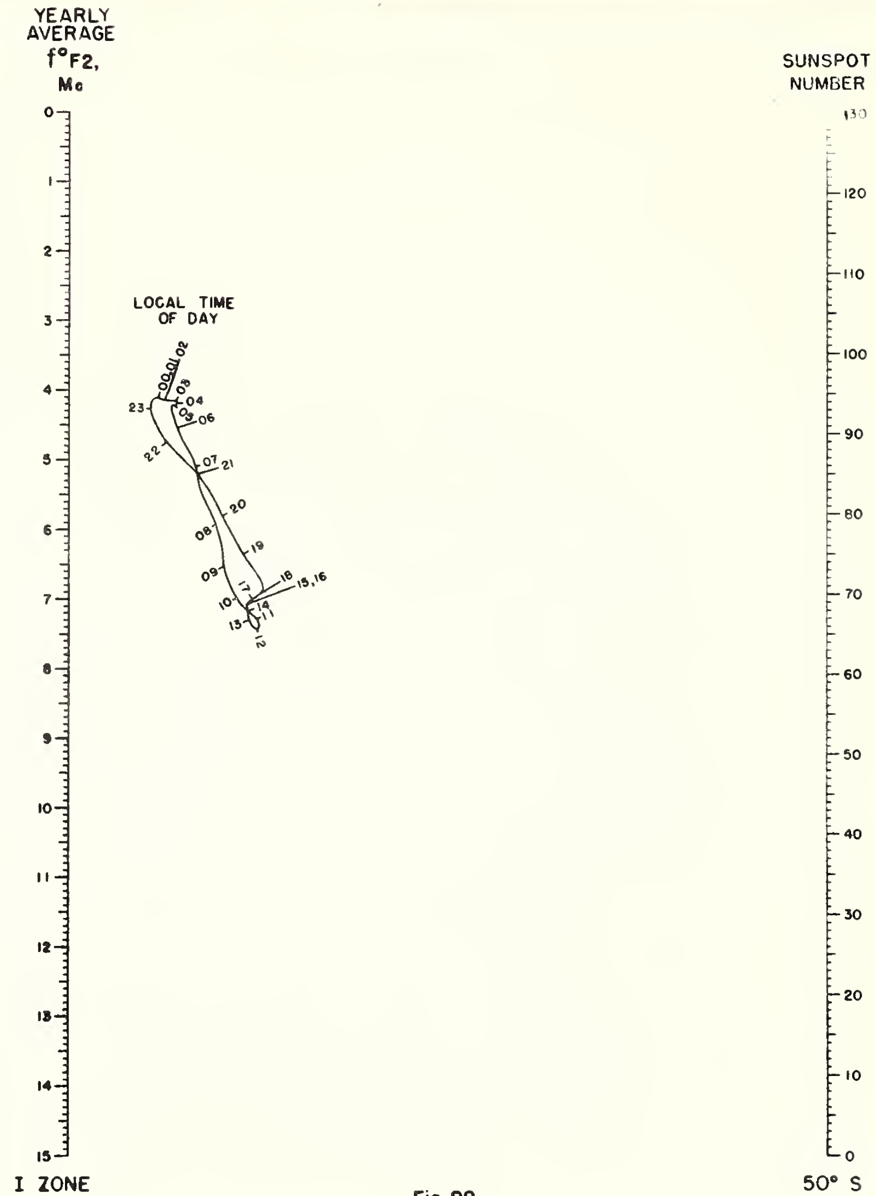

YEARLY AVERAGE
f°F2,
Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
70° S

Fig. 80.


YEARLY AVERAGE f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
60° S
Fig. 81.


YEARLY AVERAGE f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
50° S
Fig. 82.

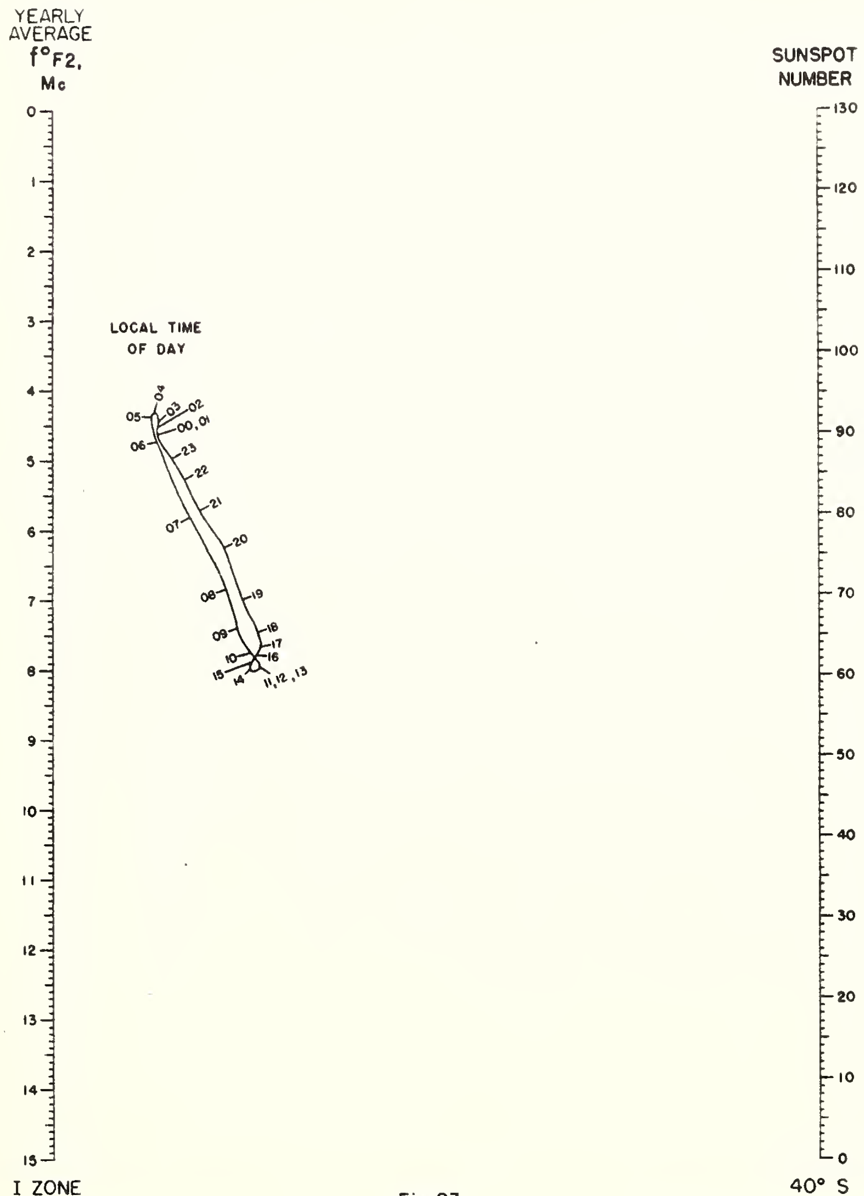

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
40° S

Fig. 83.

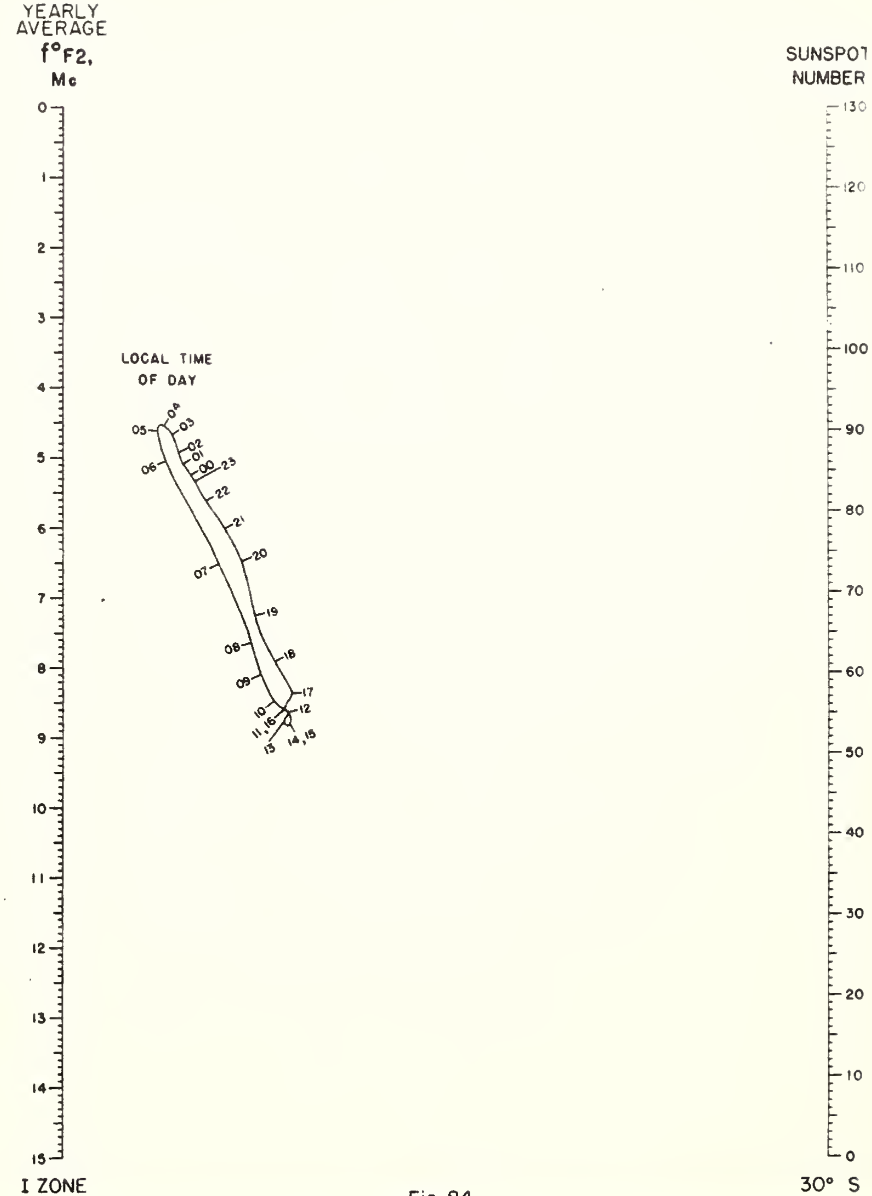
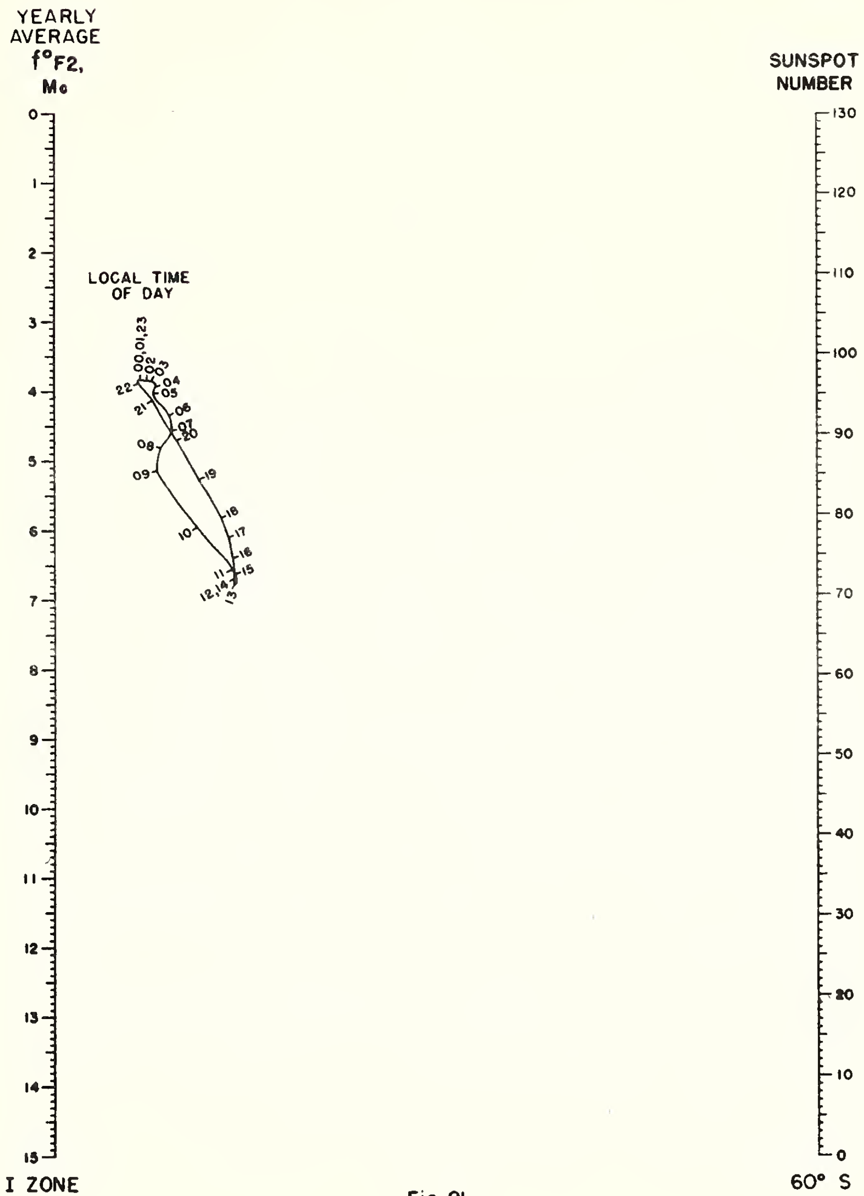
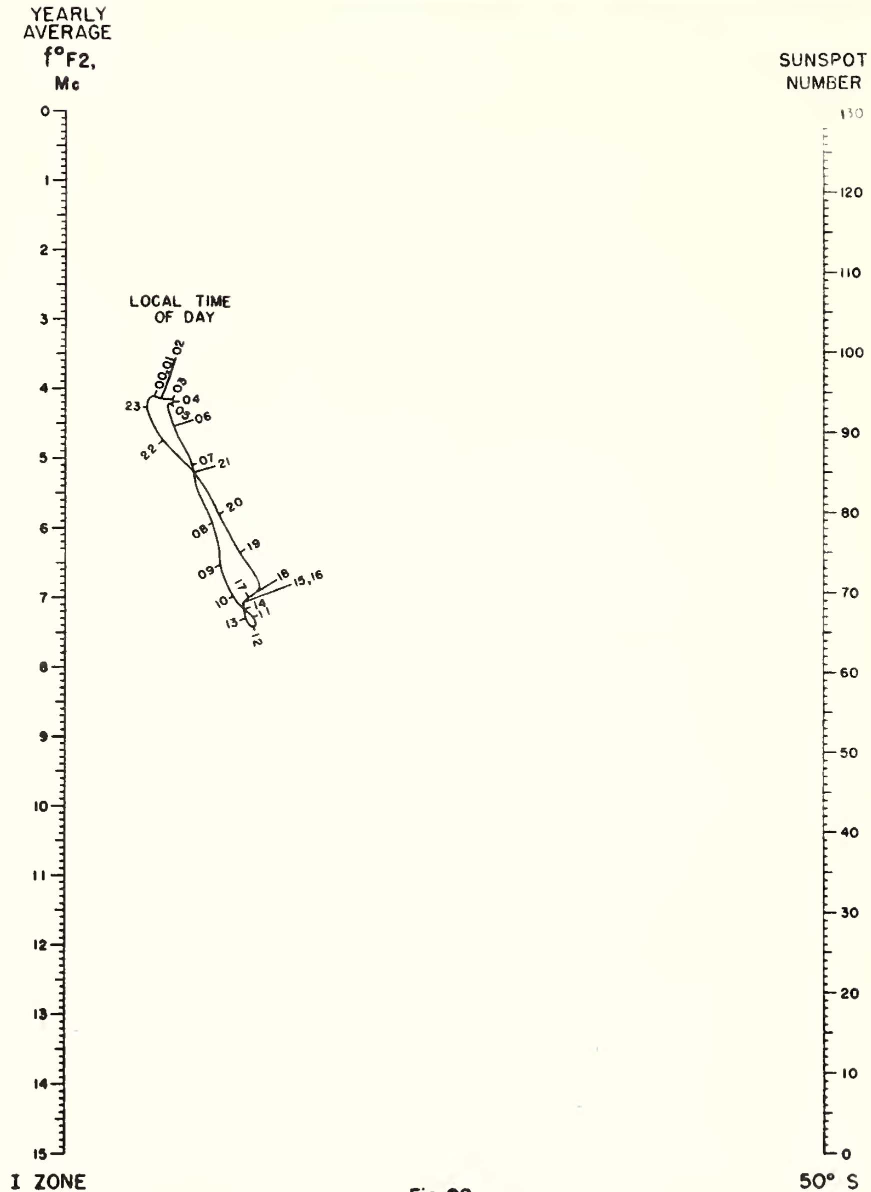

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
30° S

Fig. 84.



YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
60° S

Fig. 81.



YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
50° S

Fig. 82.

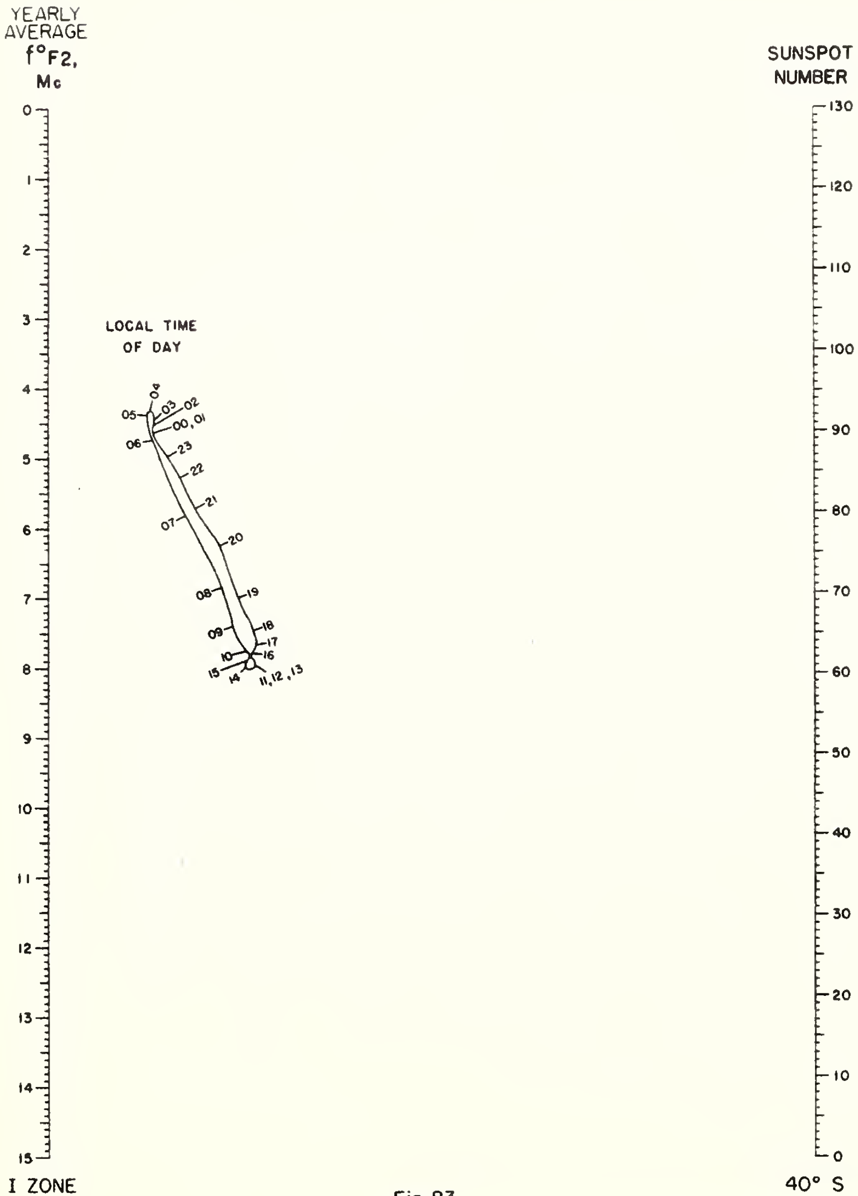

YEARLY AVERAGE $f^{\circ}F2$, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
40° S

Fig. 83.

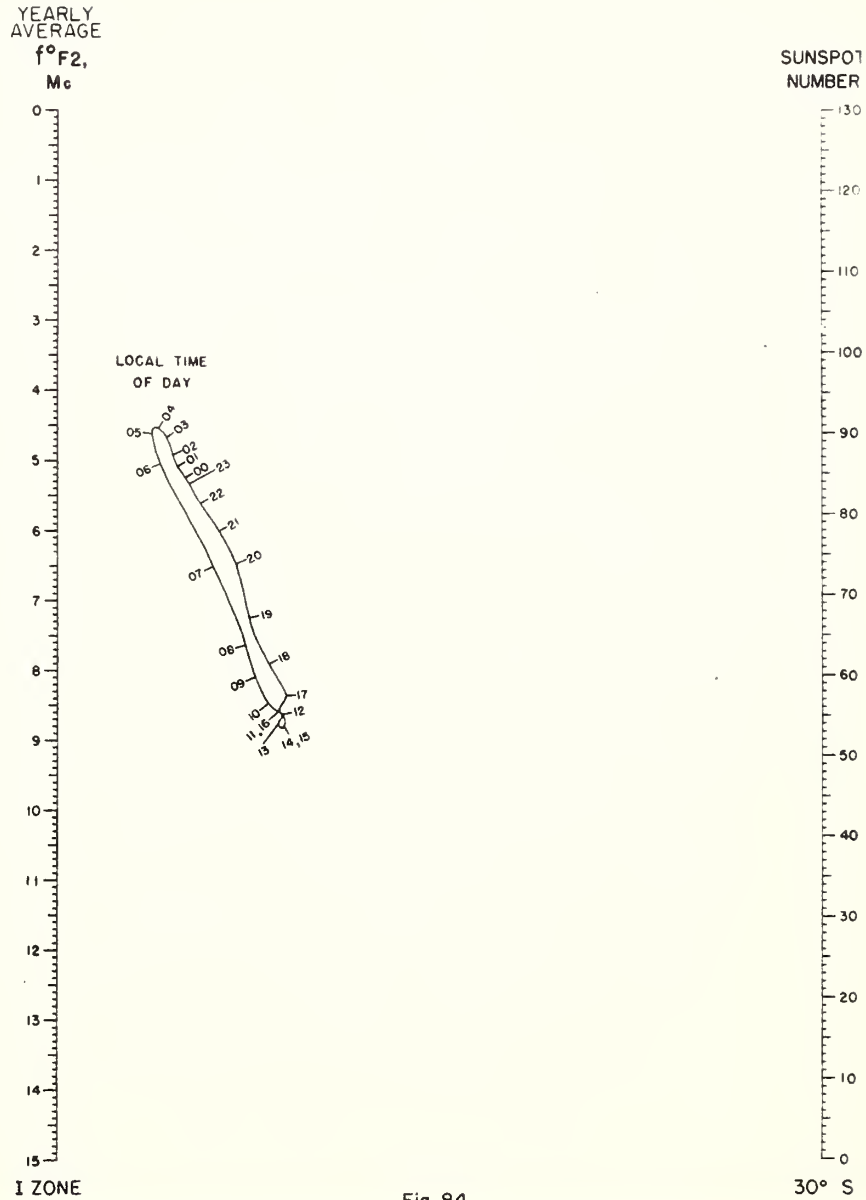

YEARLY AVERAGE $f^{\circ}F2$, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
30° S

Fig. 84.

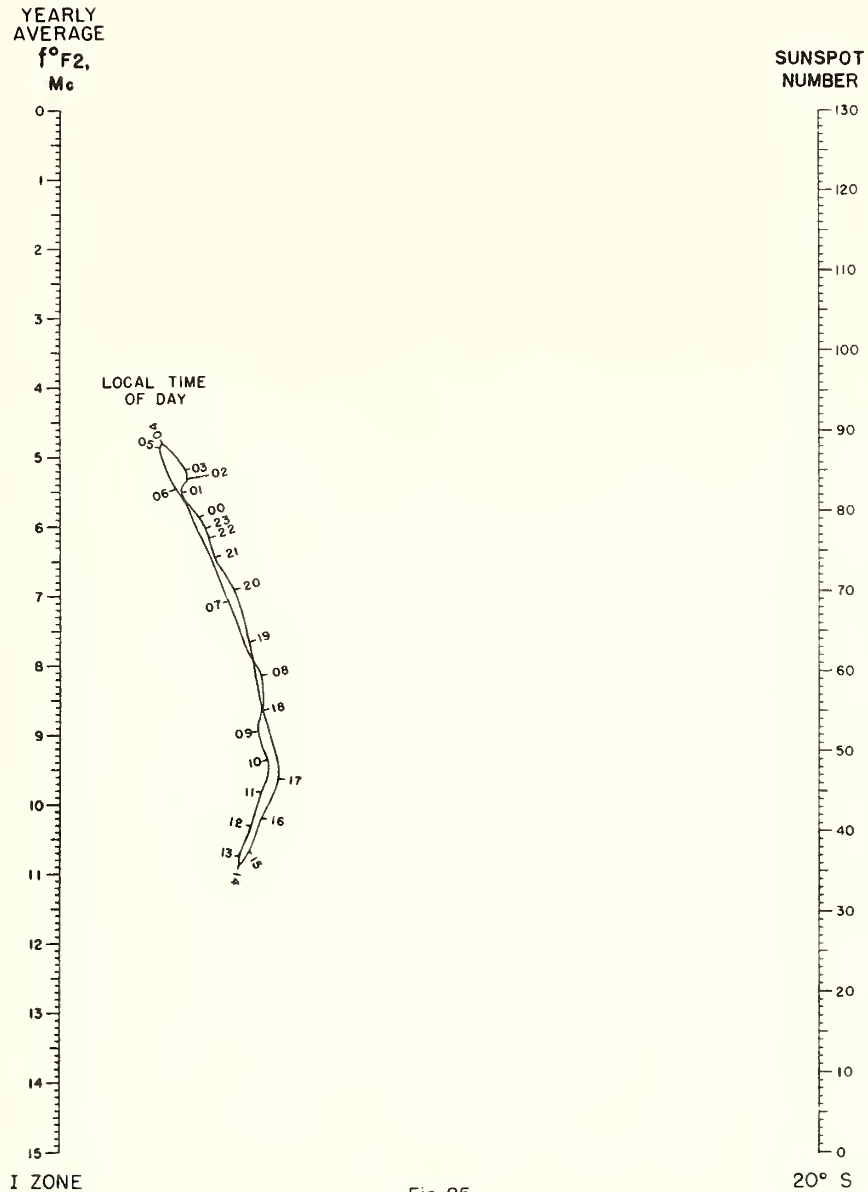

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
20° S

Fig. 85.

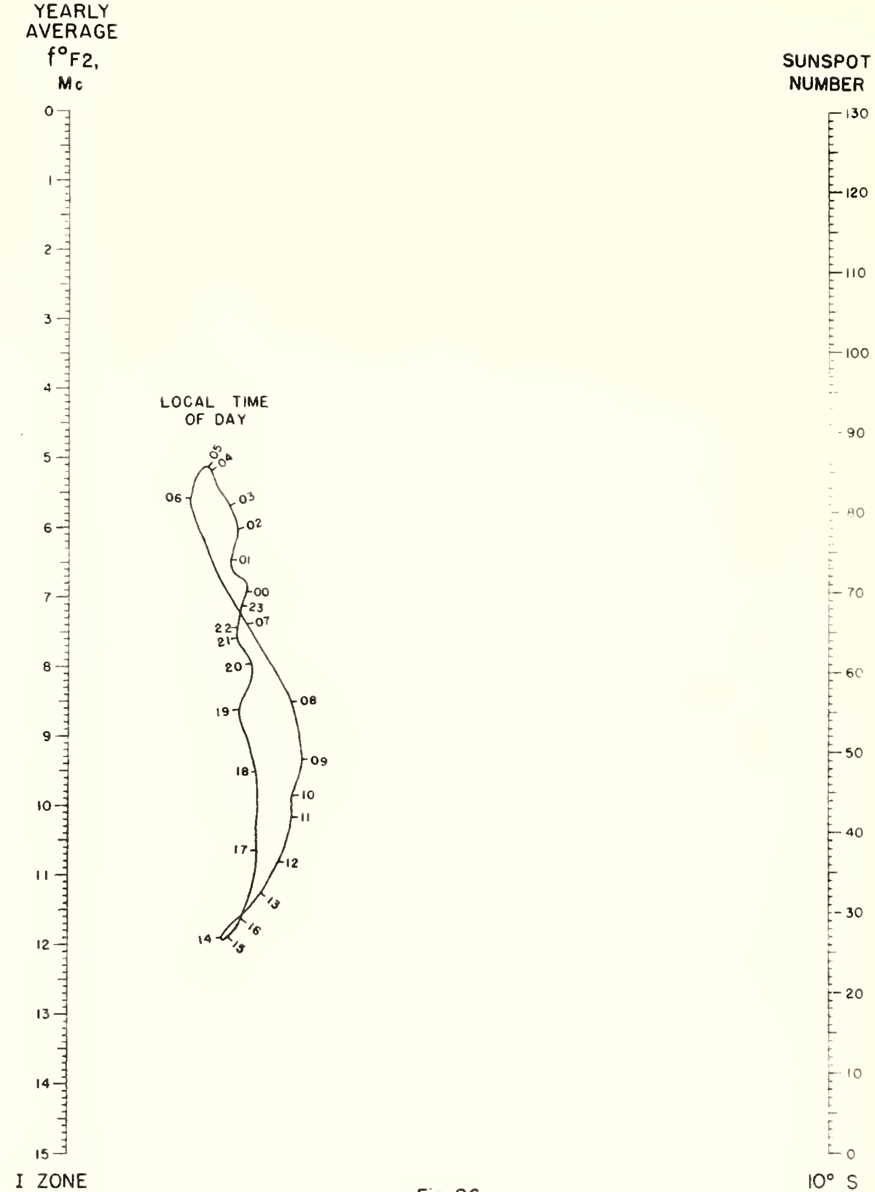
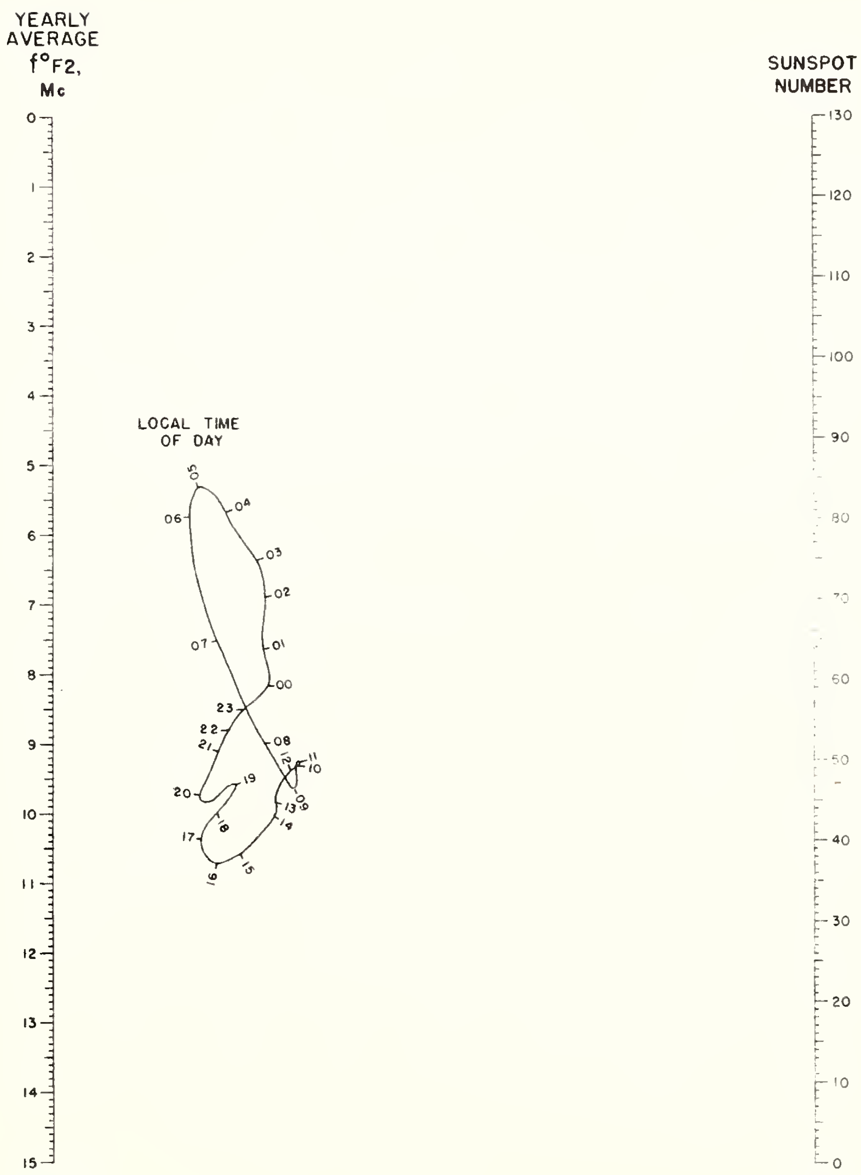
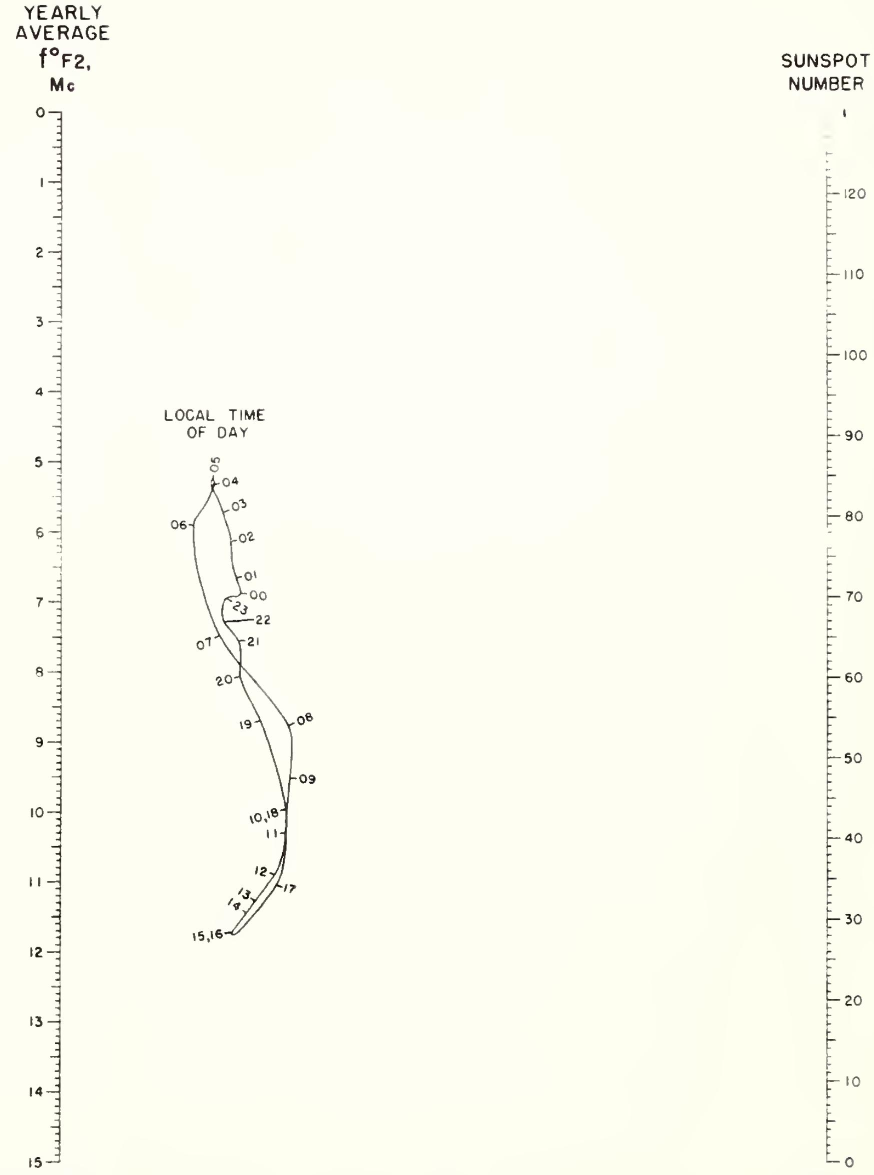

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
I ZONE
10° S

Fig. 86.



YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
0°

Fig. 87.



YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
10° N

Fig. 88.

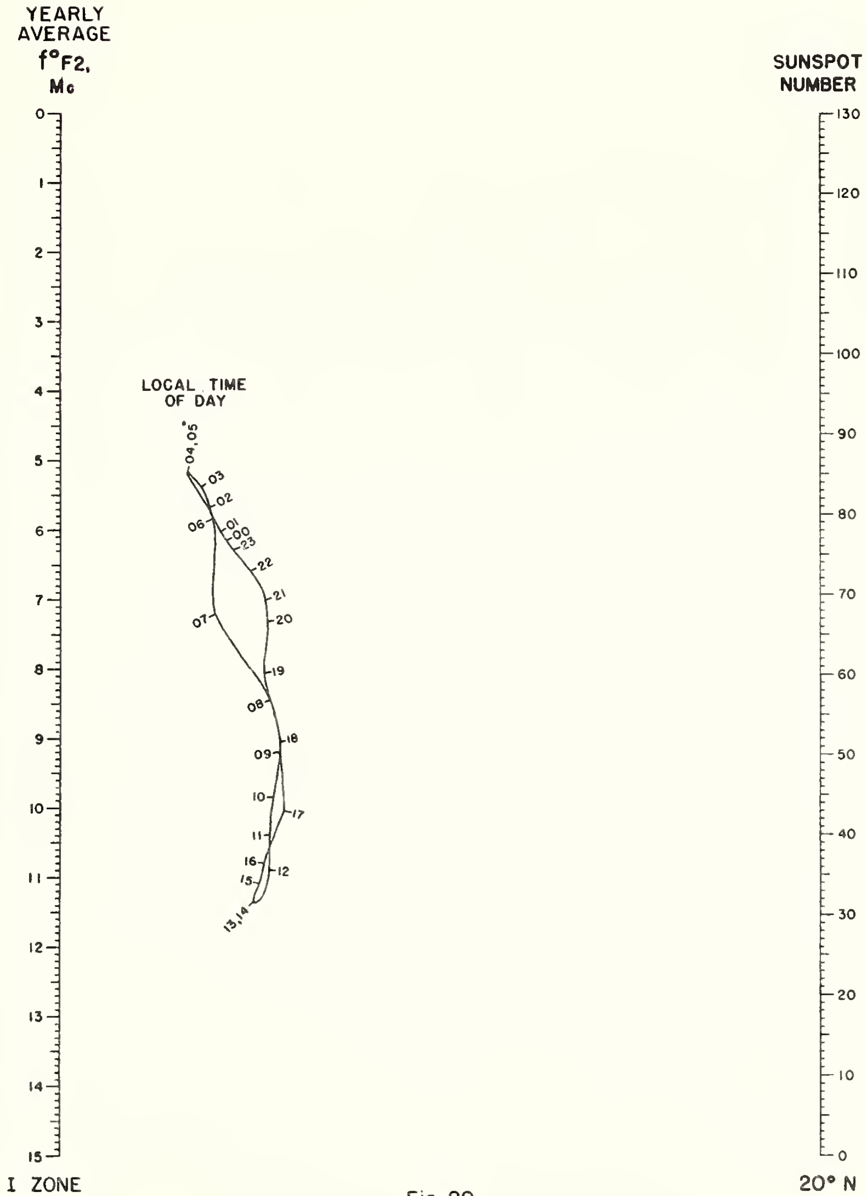

YEARLY AVERAGE $f^{o}F2$, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
20° N

Fig. 89.

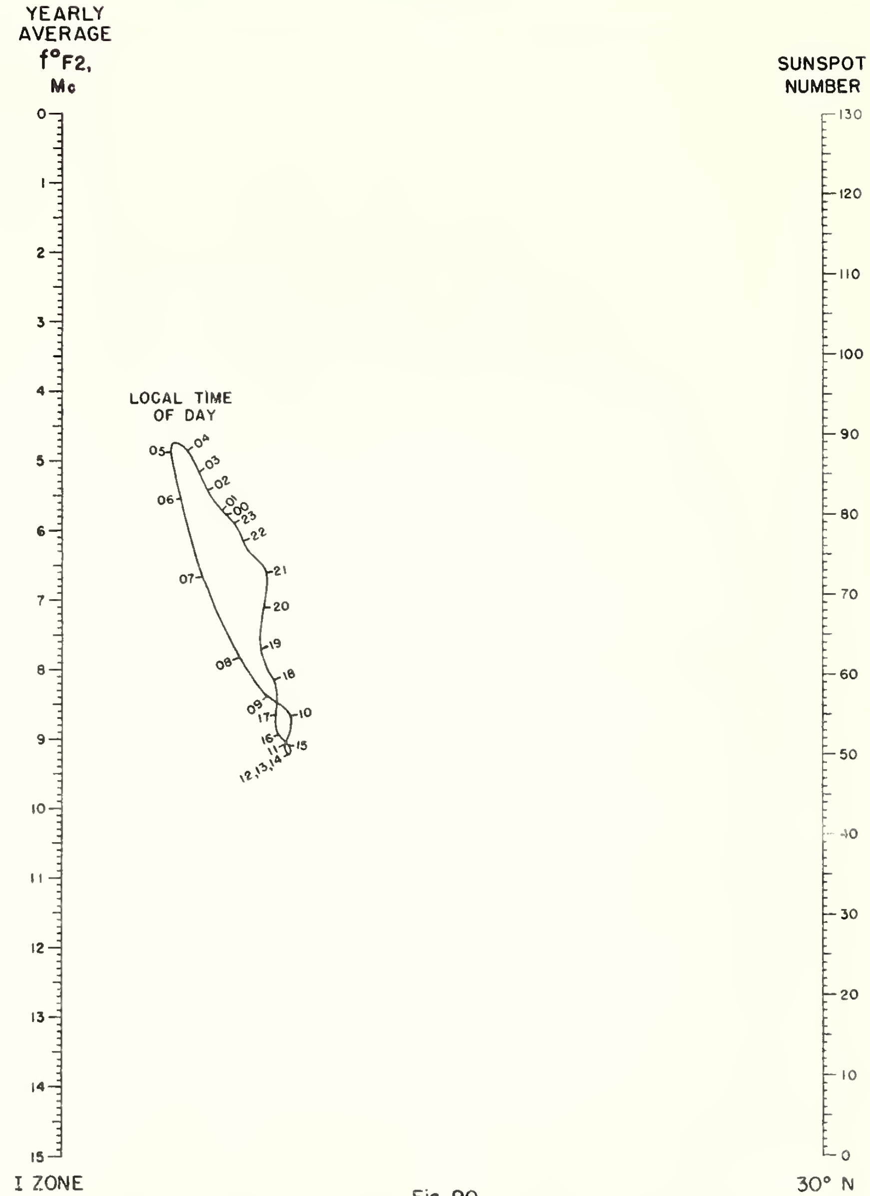

YEARLY AVERAGE $f^{o}F2$, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
30° N

Fig. 90.

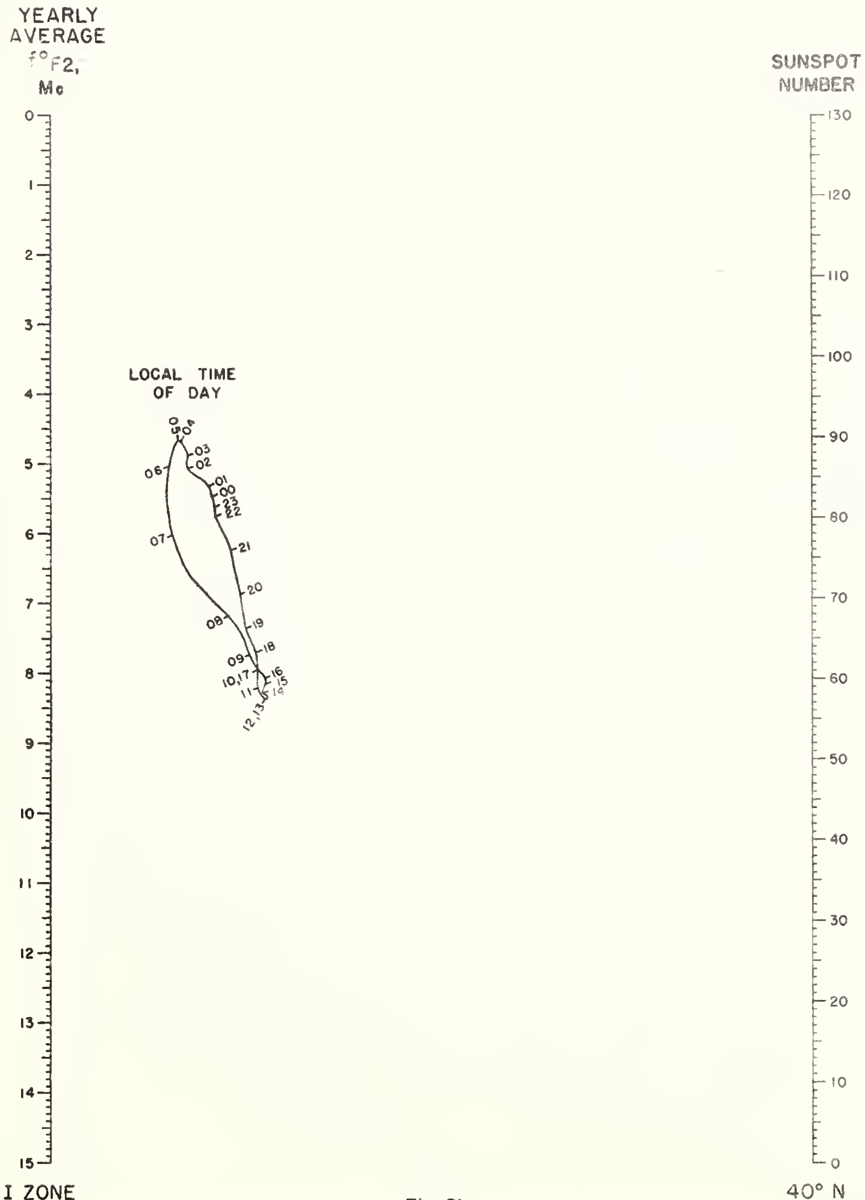

YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
40° N

Fig. 91.

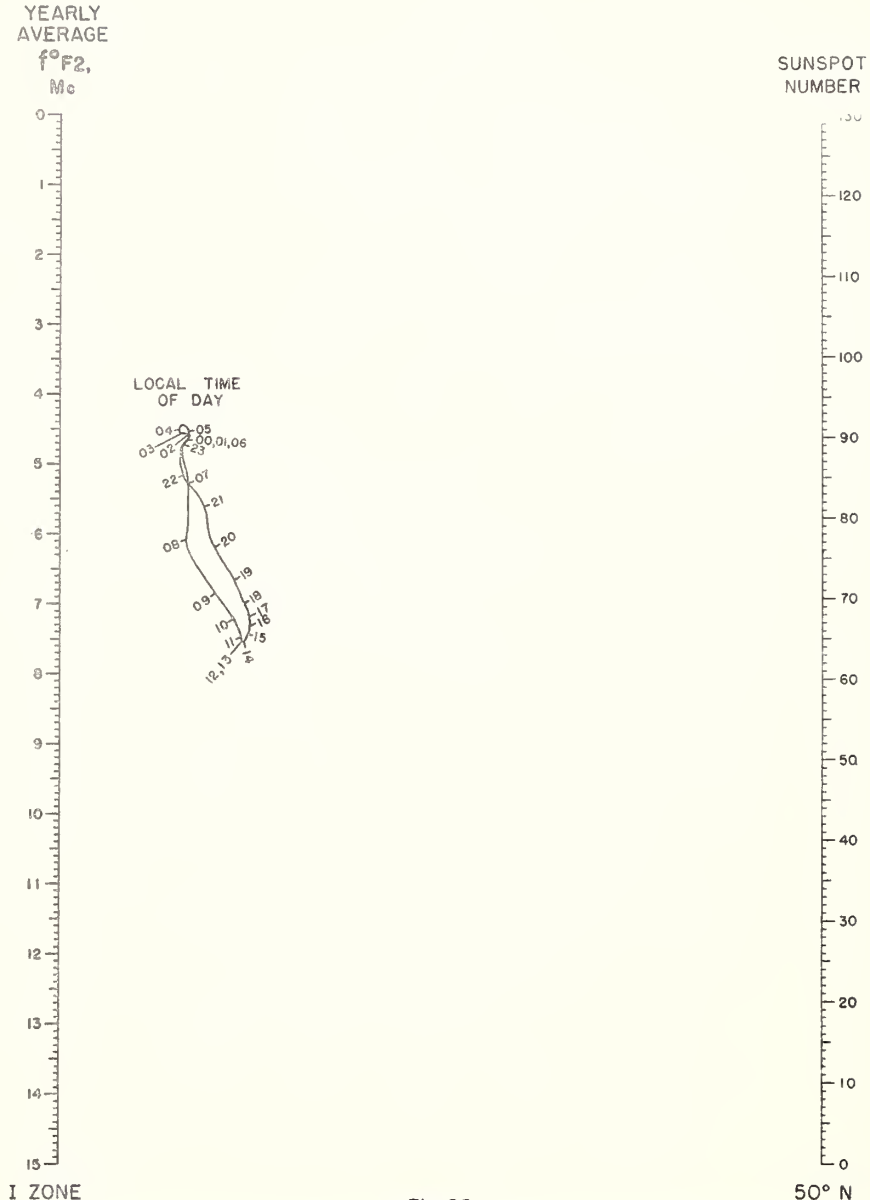

YEARLY AVERAGE f^oF2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
50° N

Fig. 92.

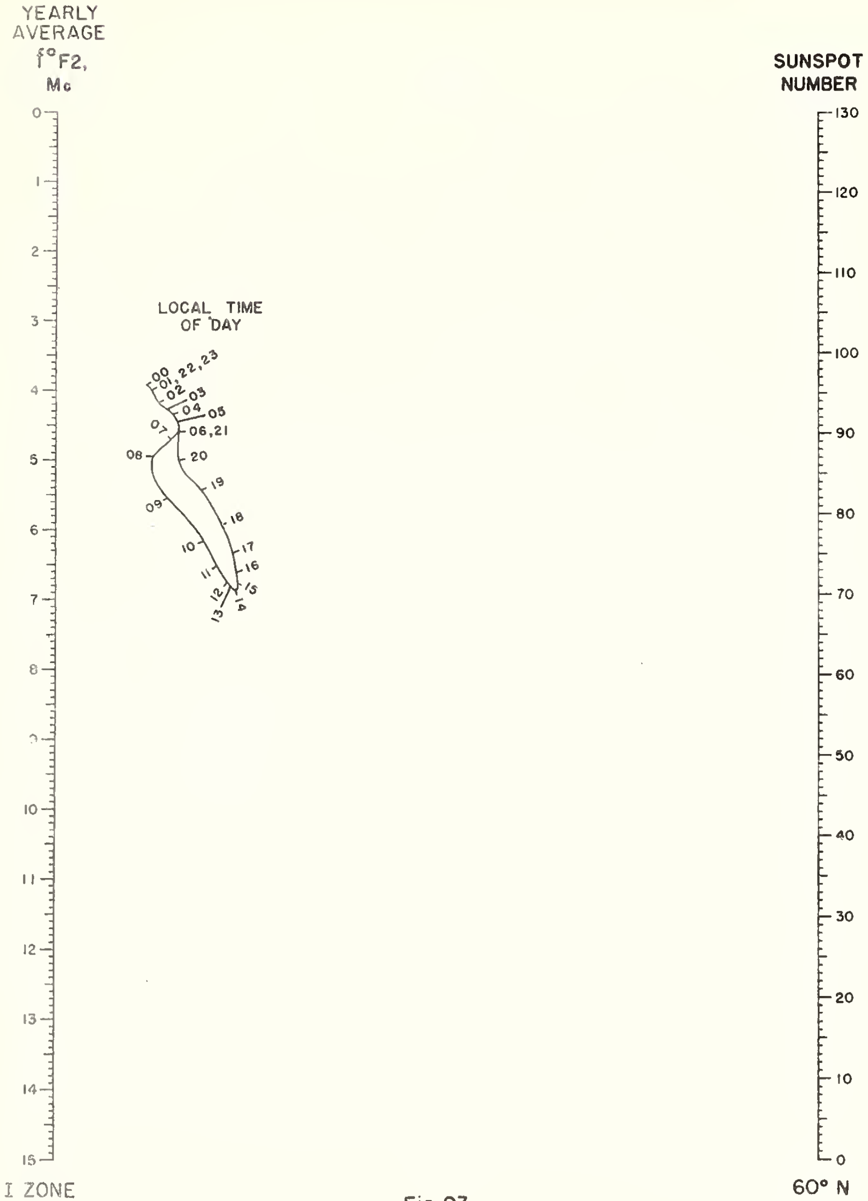

YEARLY AVERAGE f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
60° N

Fig. 93.

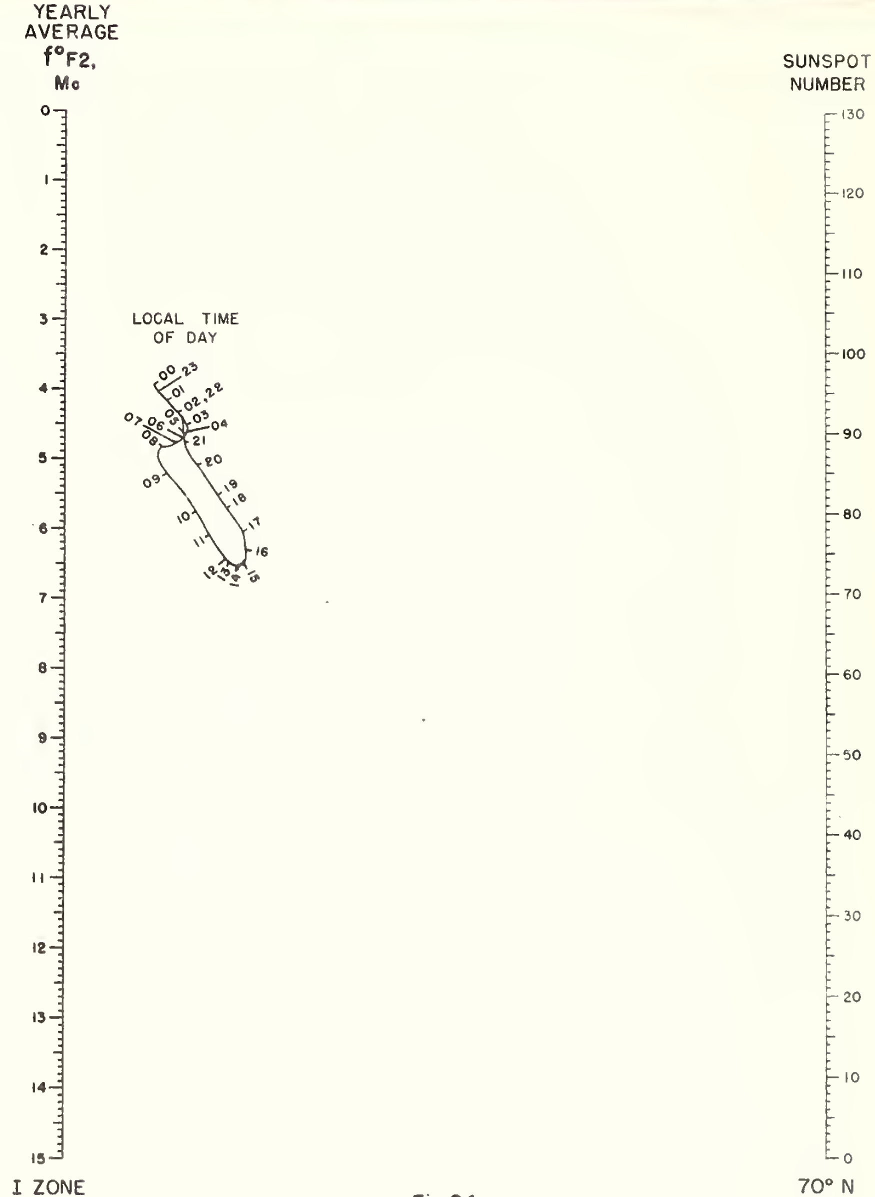

YEARLY AVERAGE f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
I ZONE
70° N

Fig. 94.

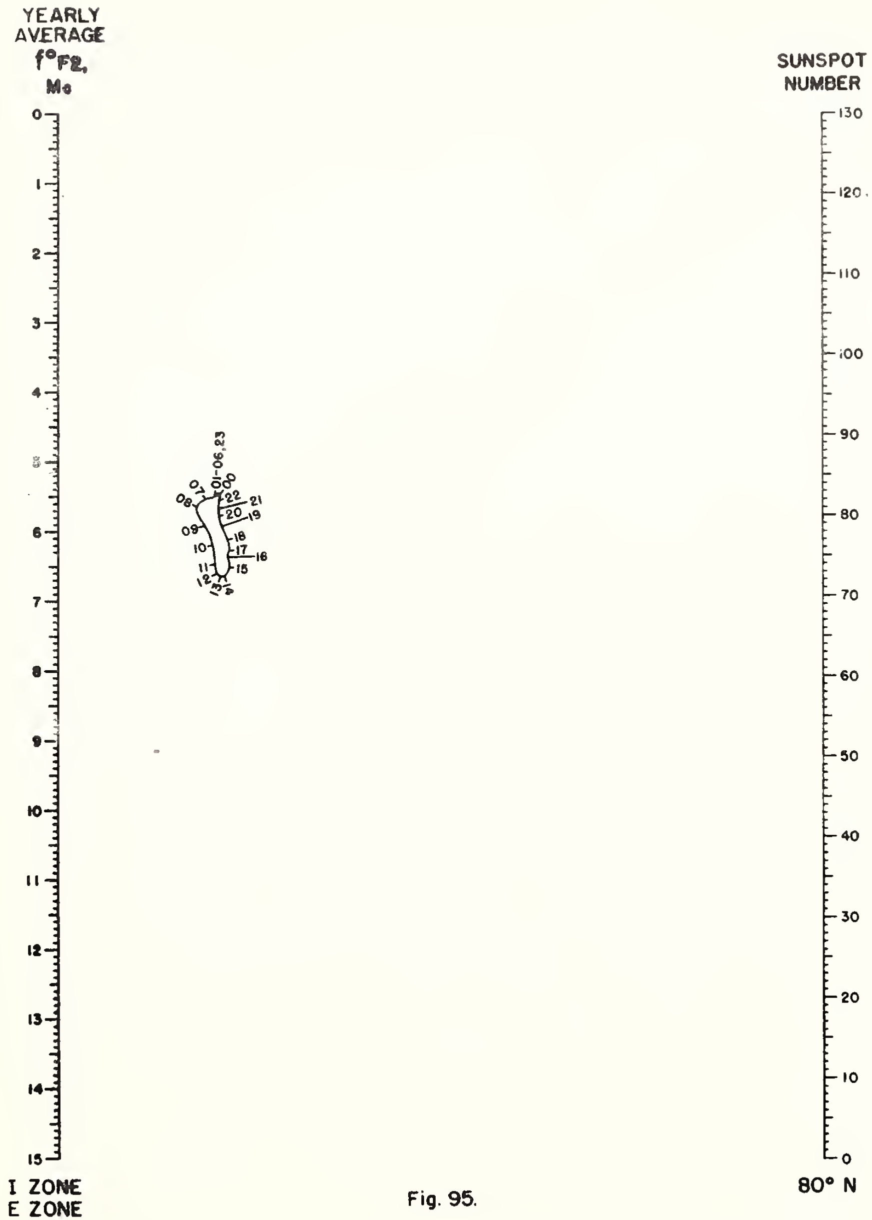

YEARLY AVERAGE f^oF2, Mc
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
I ZONE
E ZONE
SUNSPOT NUMBER
130
120
110
100
90
80
70
60
50
40
30
20
10
0
80° N
01-06,23
00
22
21
20
19
18
17
16
15
14
13
12
11
10
09
08
07

Fig. 95.

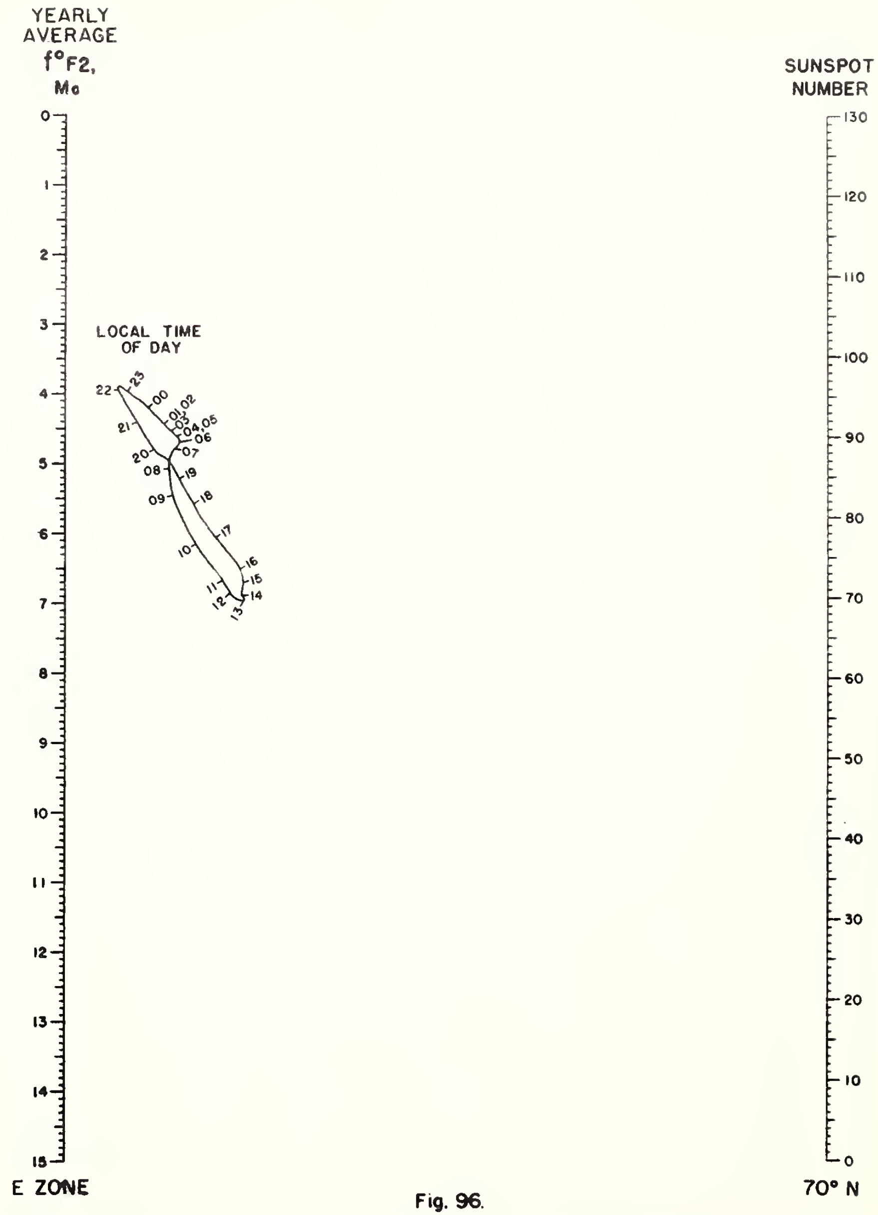
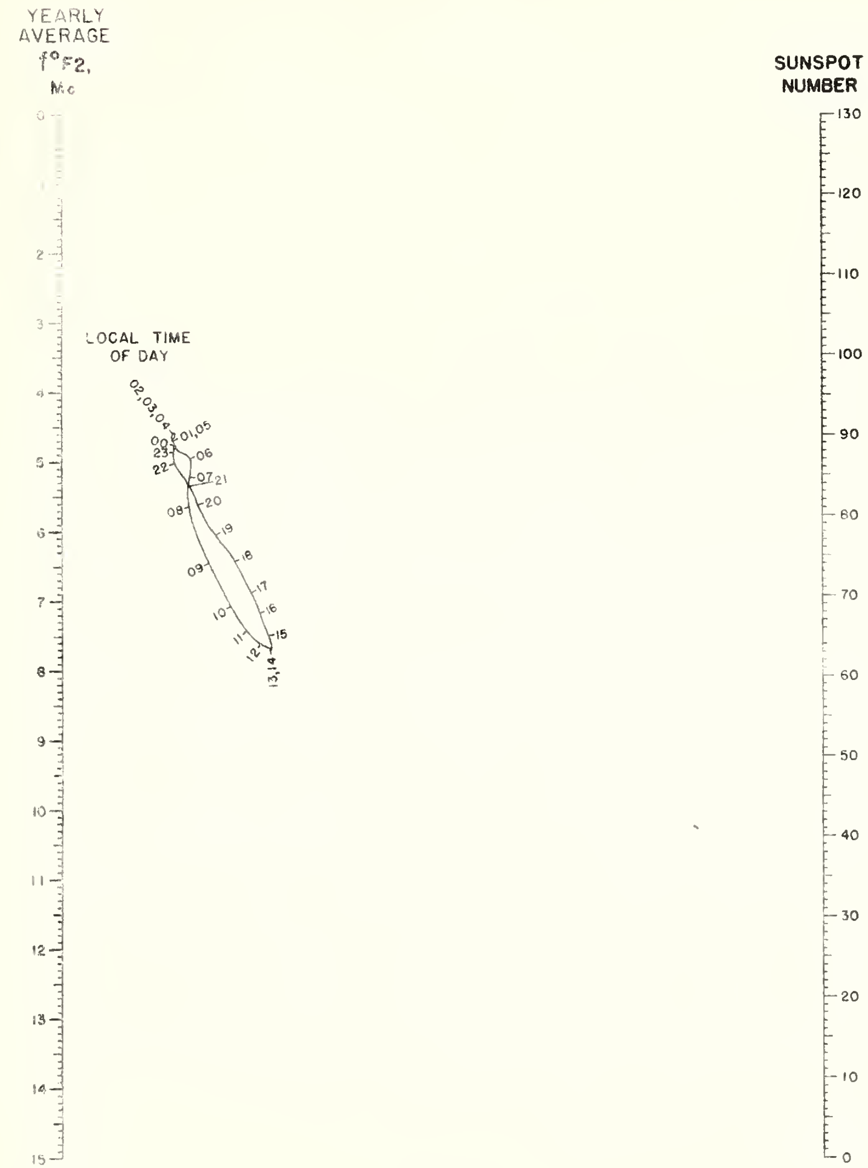
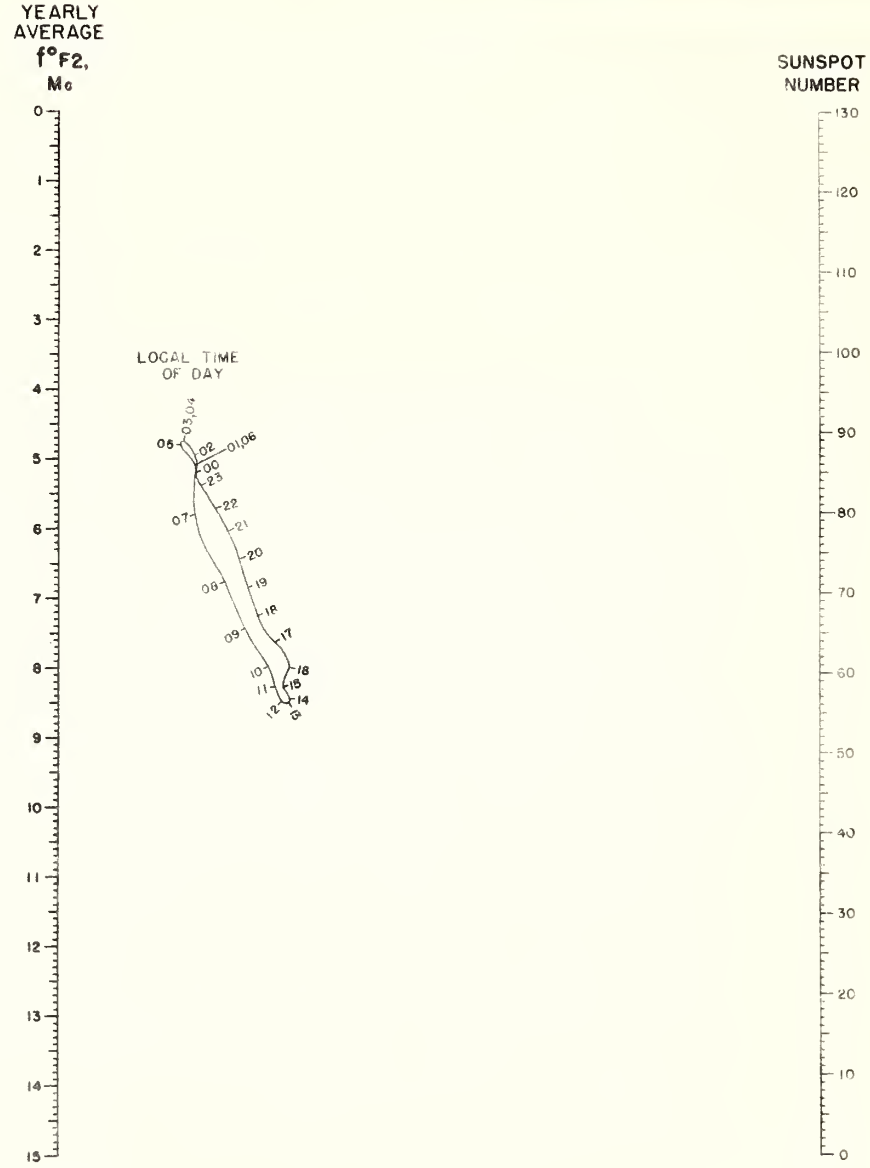

YEARLY AVERAGE f^oF2, Mc
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
E ZONE
LOCAL TIME OF DAY
22
23
00
01,02
03
04,05
06
07
21
20
08
19
09
18
17
10
16
15
14
13
12
11
SUNSPOT NUMBER
130
120
110
100
90
80
70
60
50
40
30
20
10
0
70° N

Fig. 96.



YEARLY AVERAGE f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
E ZONE
60° N

Fig. 97



YEARLY AVERAGE f°F2, Mc
LOCAL TIME OF DAY
SUNSPOT NUMBER
E ZONE
50° N

Fig. 98

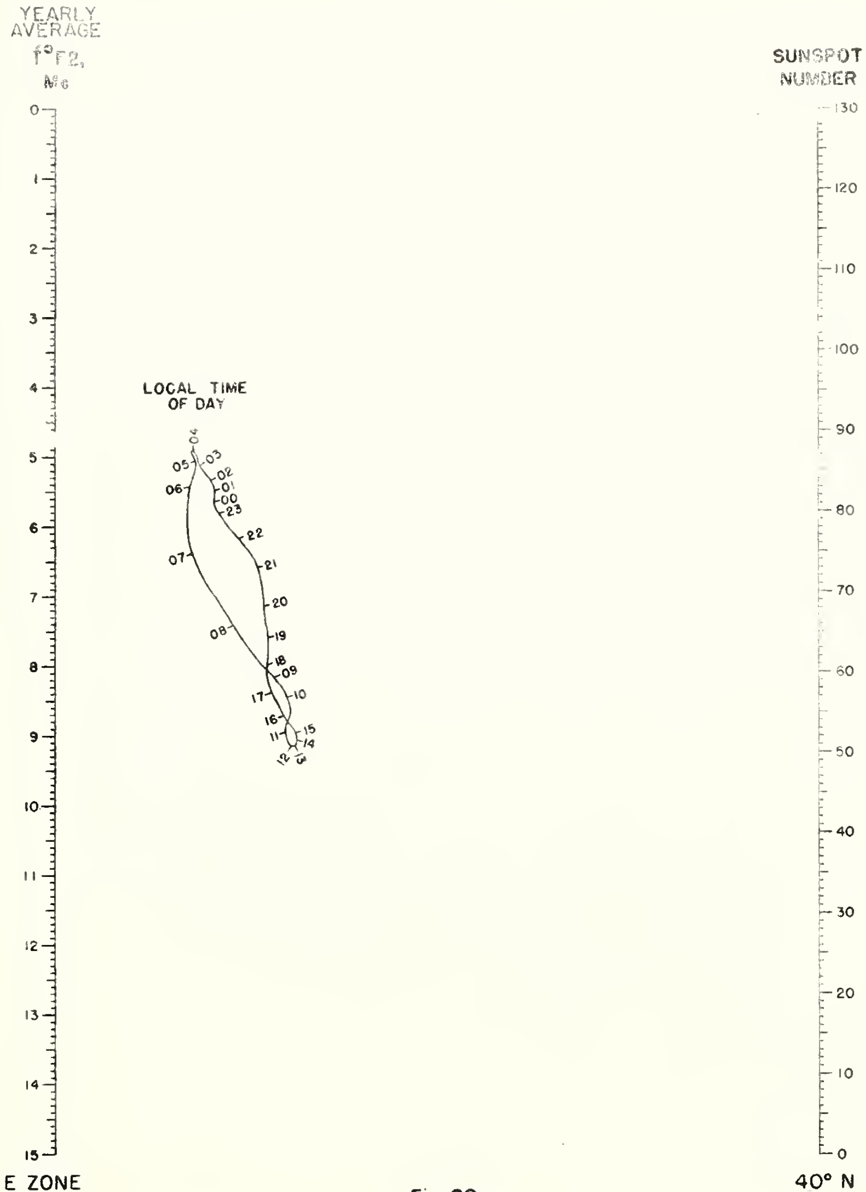


Fig. 99.

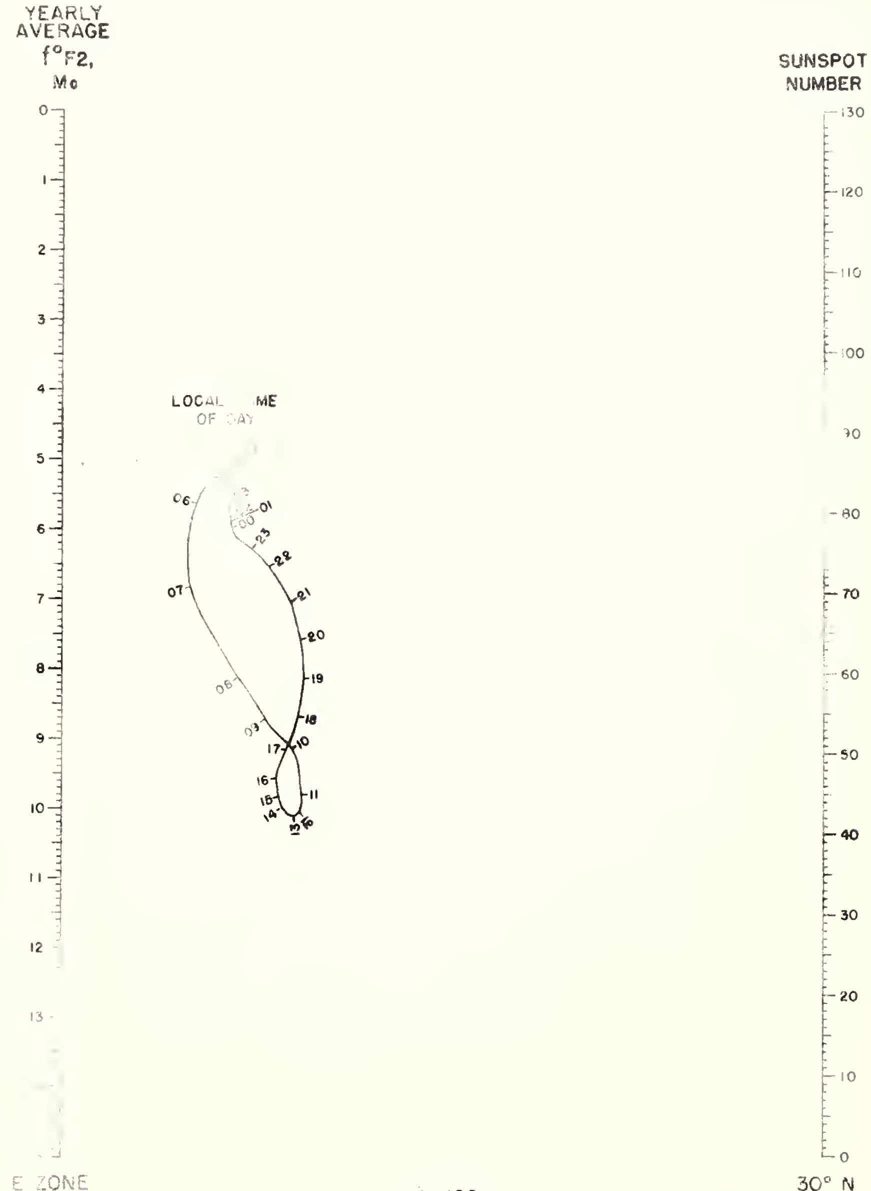


Fig. 100.

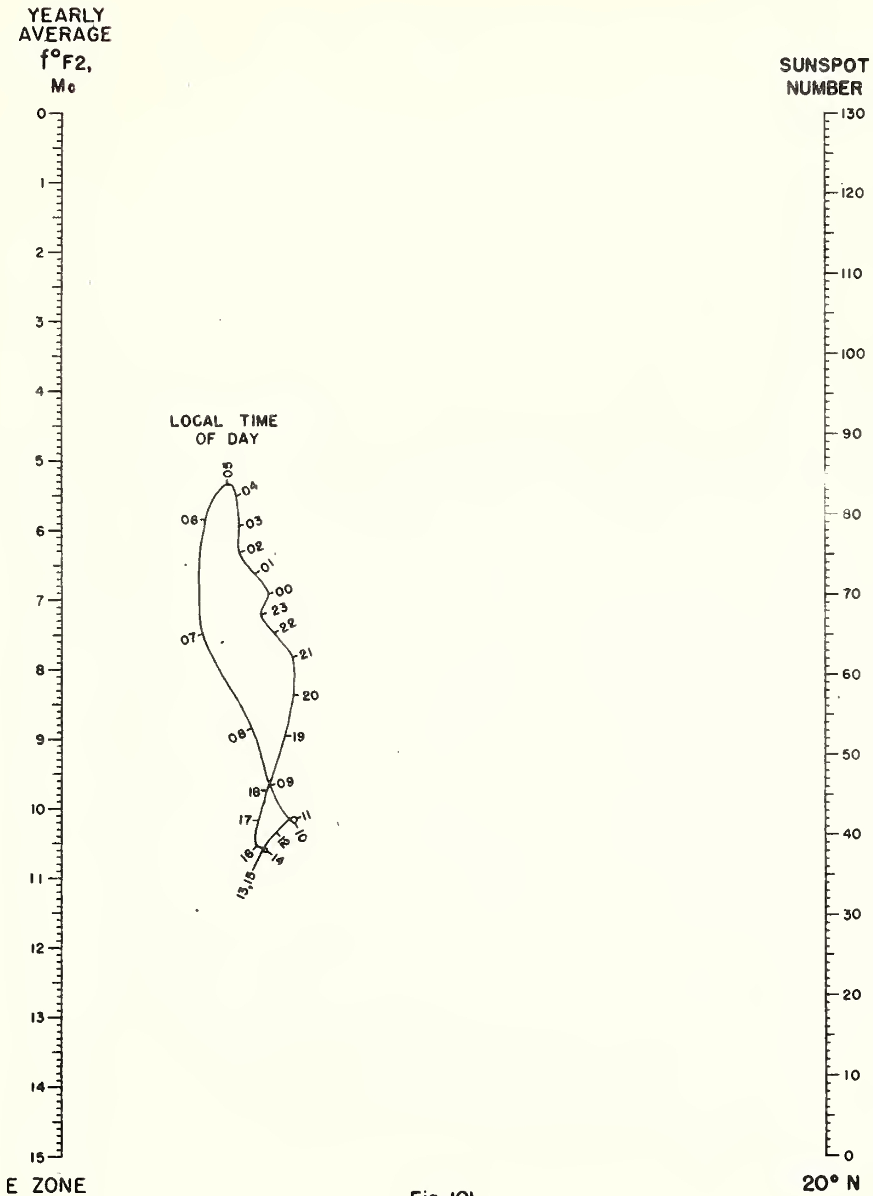


Fig. 101.

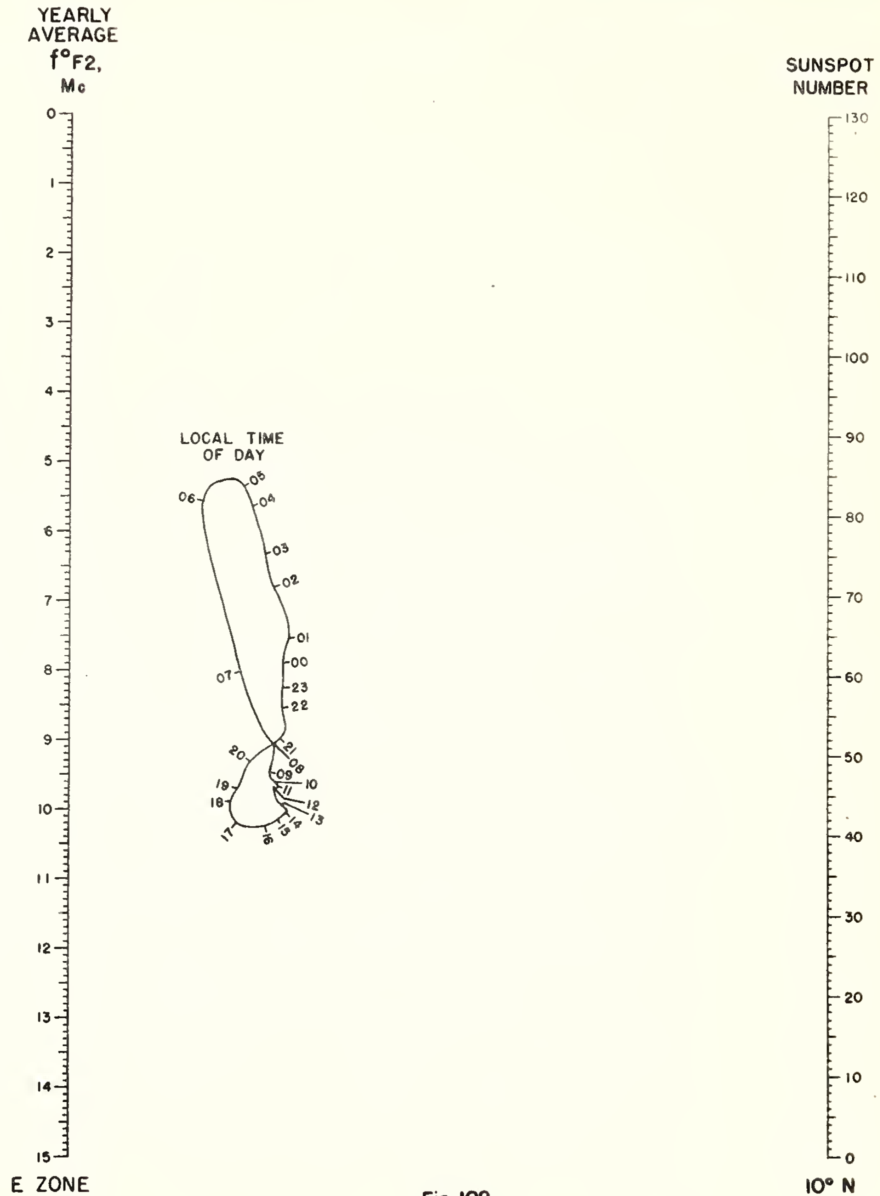


Fig. 102.

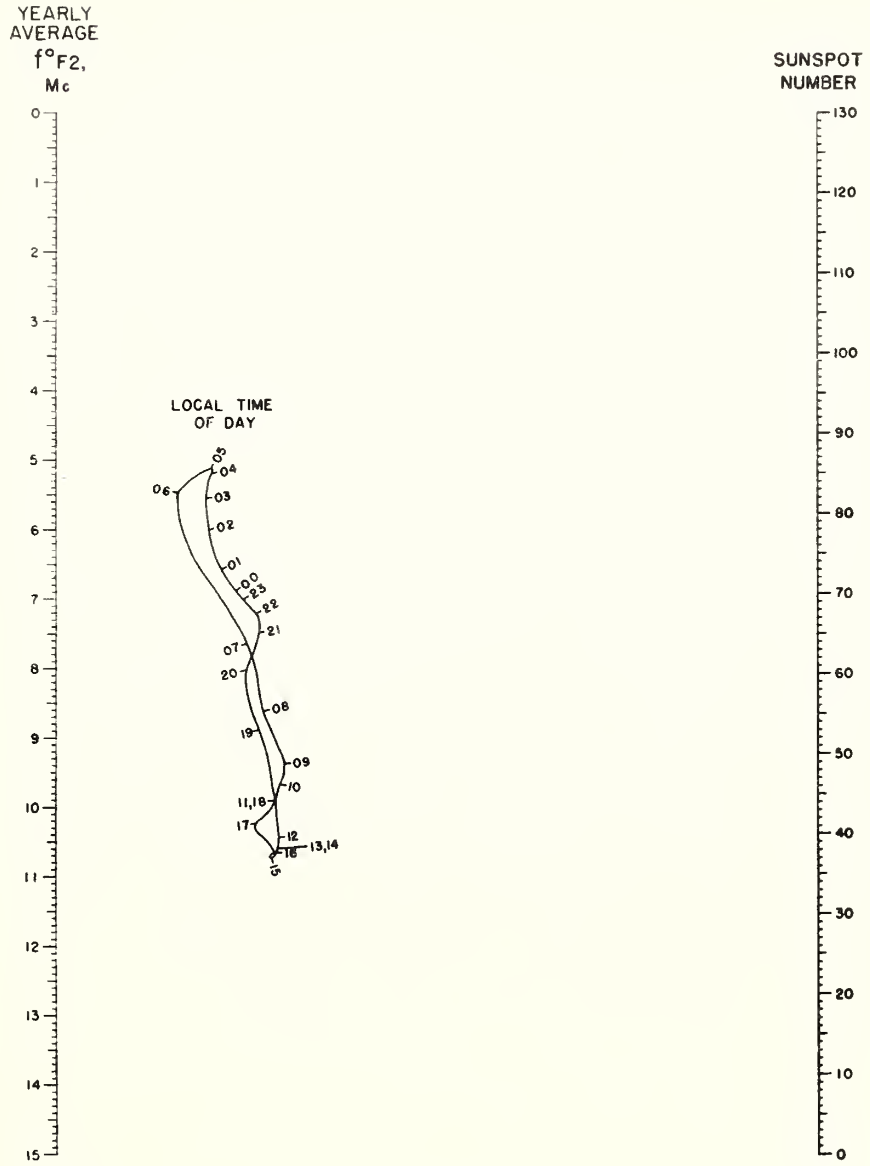


Fig. 103.

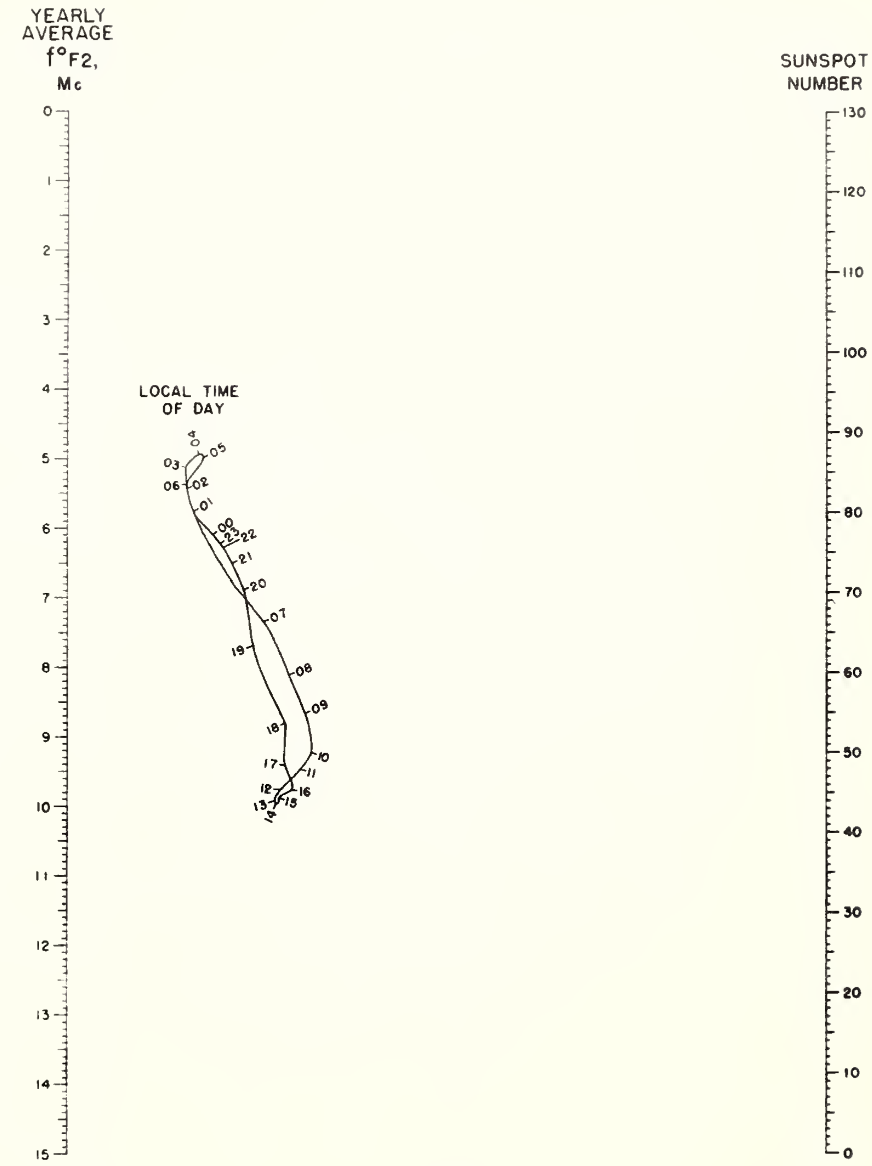


Fig. 104.

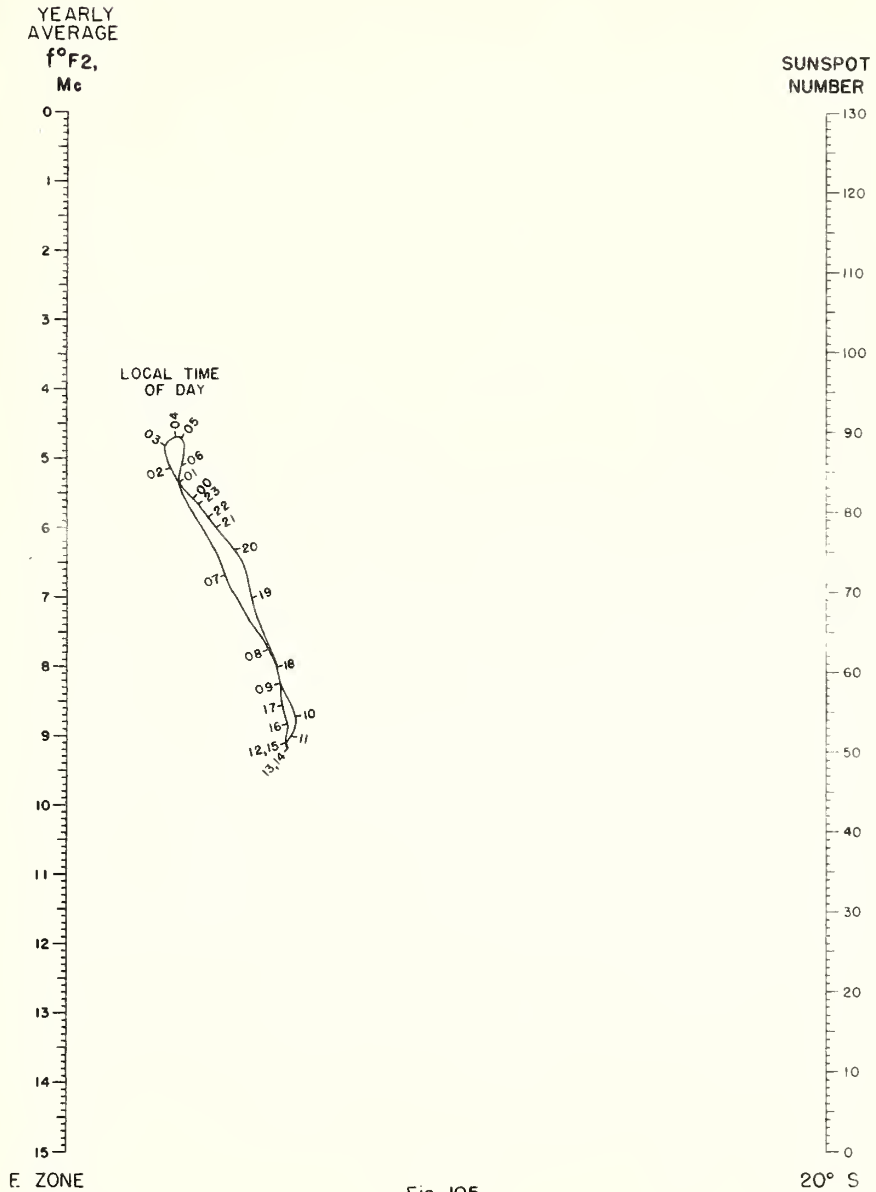


Fig 105.

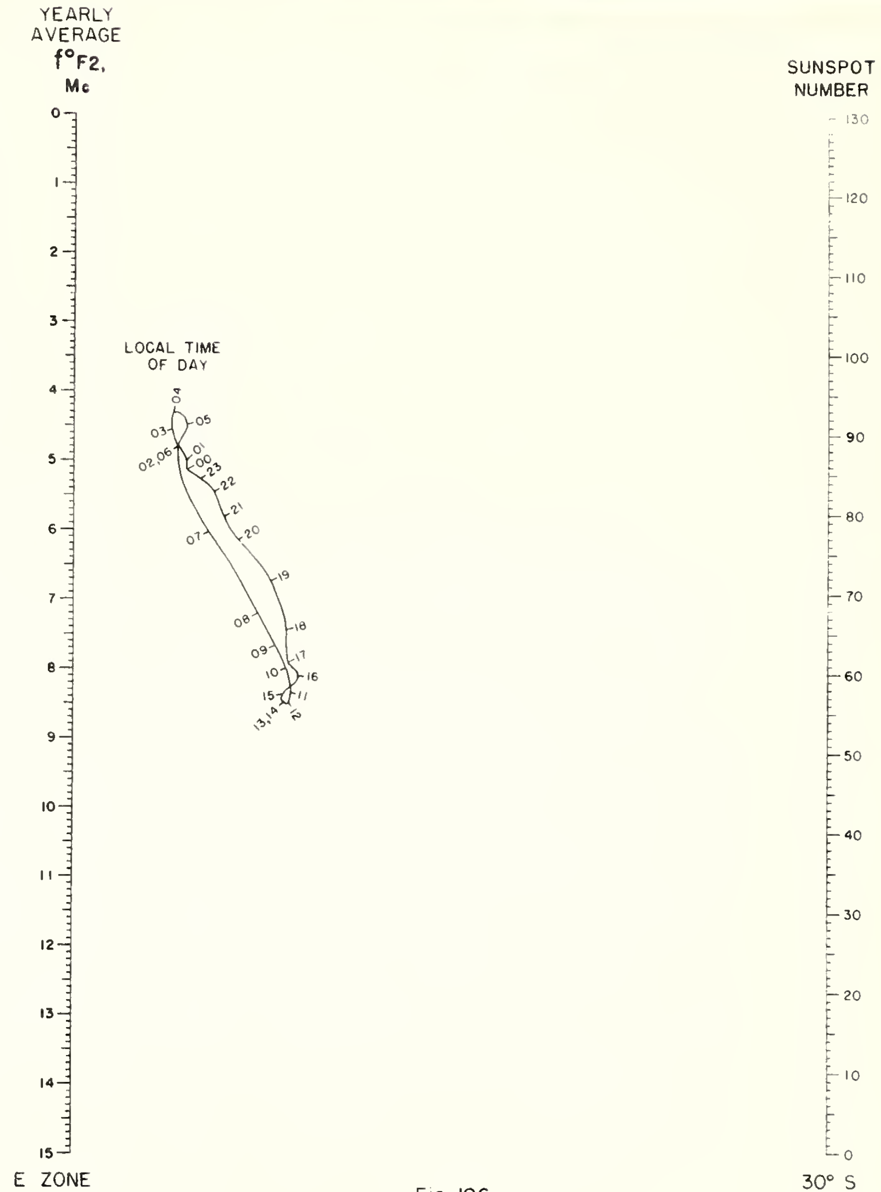


Fig 106.

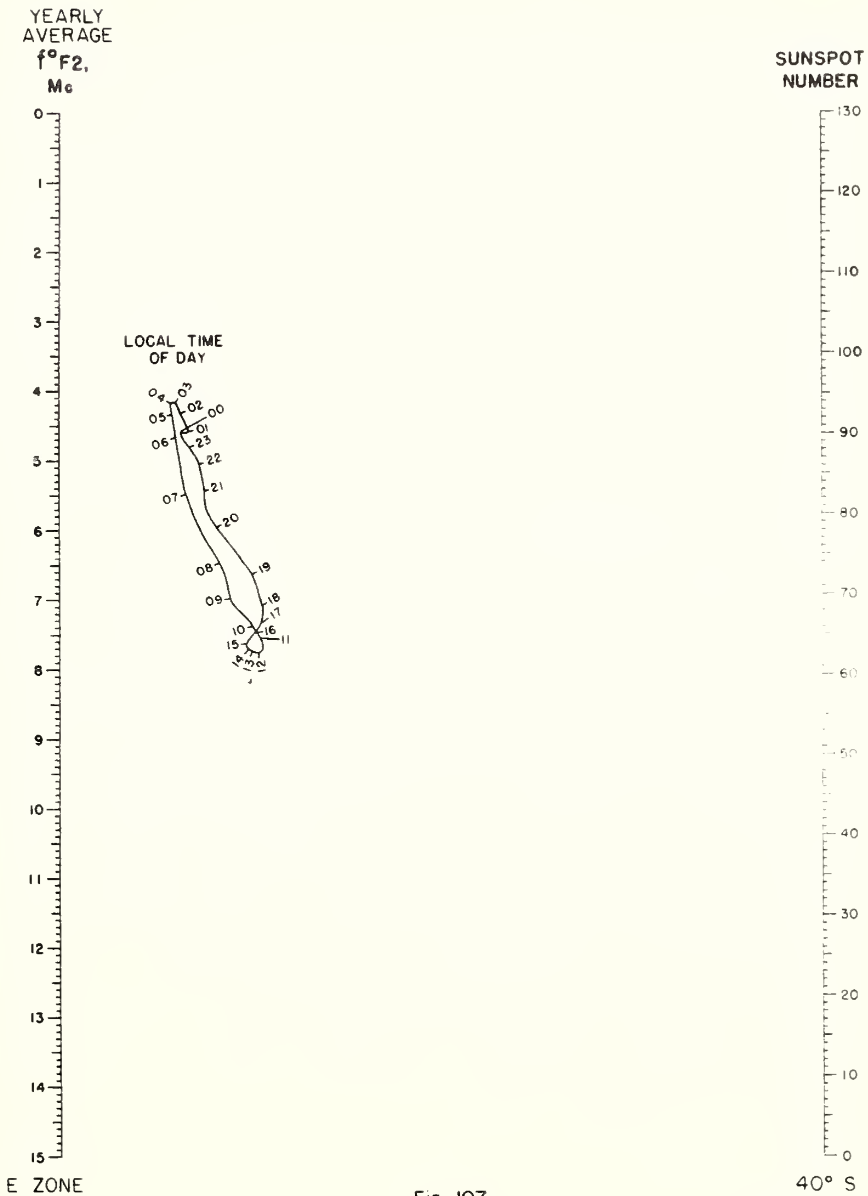


Fig. 107

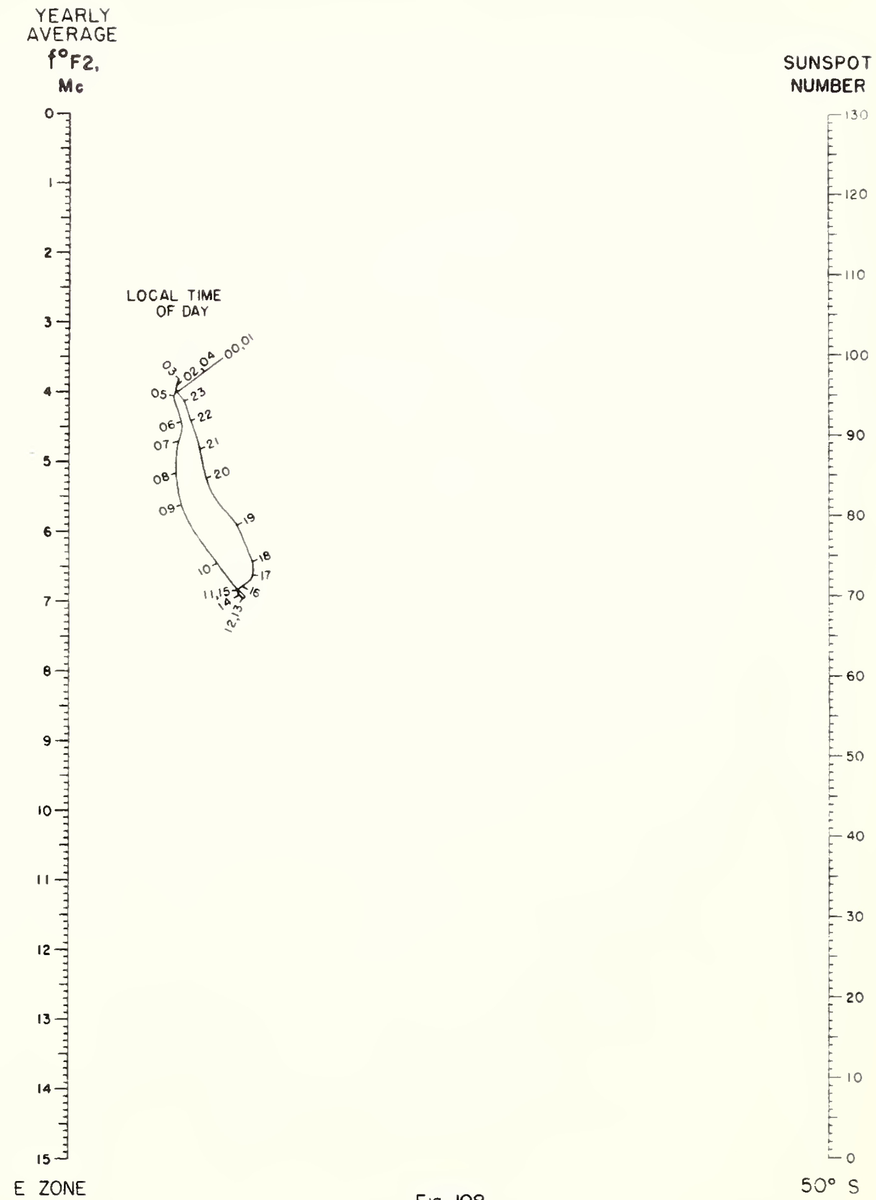


Fig. 108

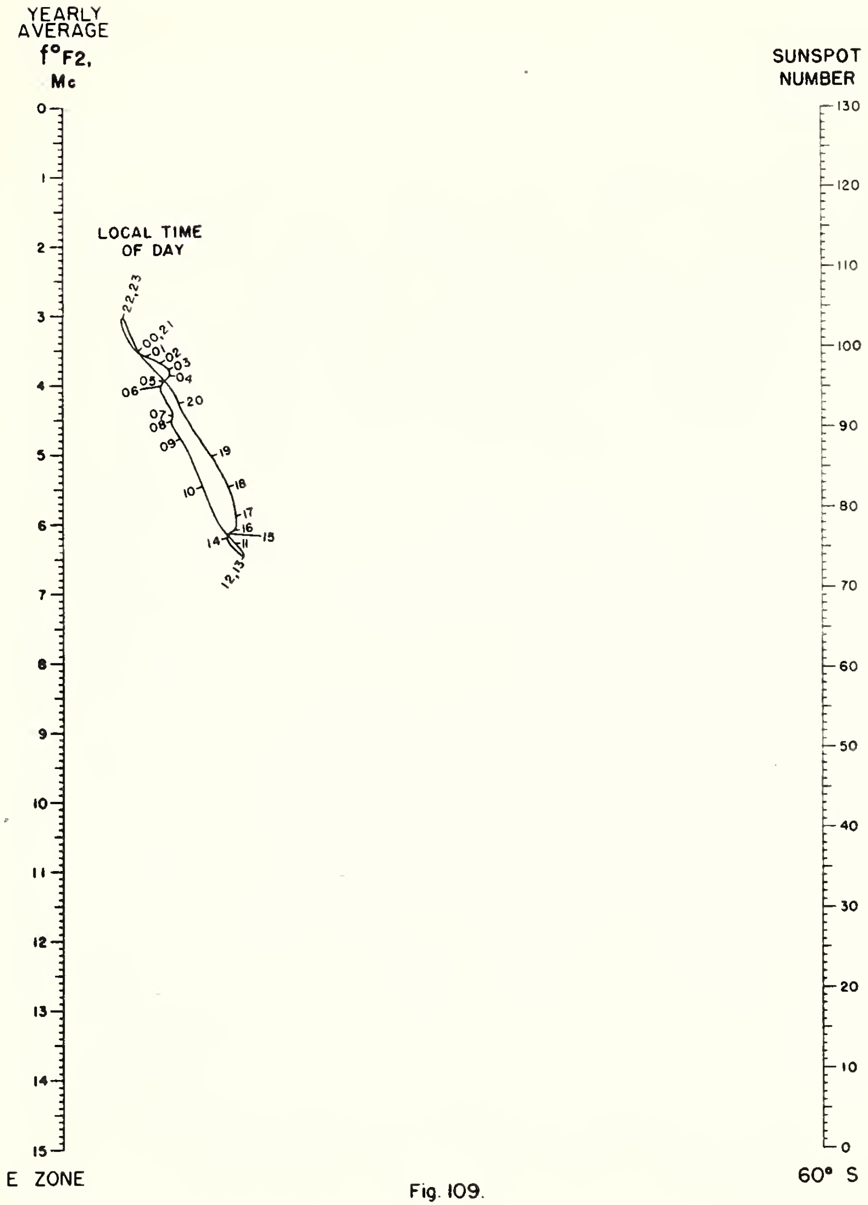


Fig. 109.

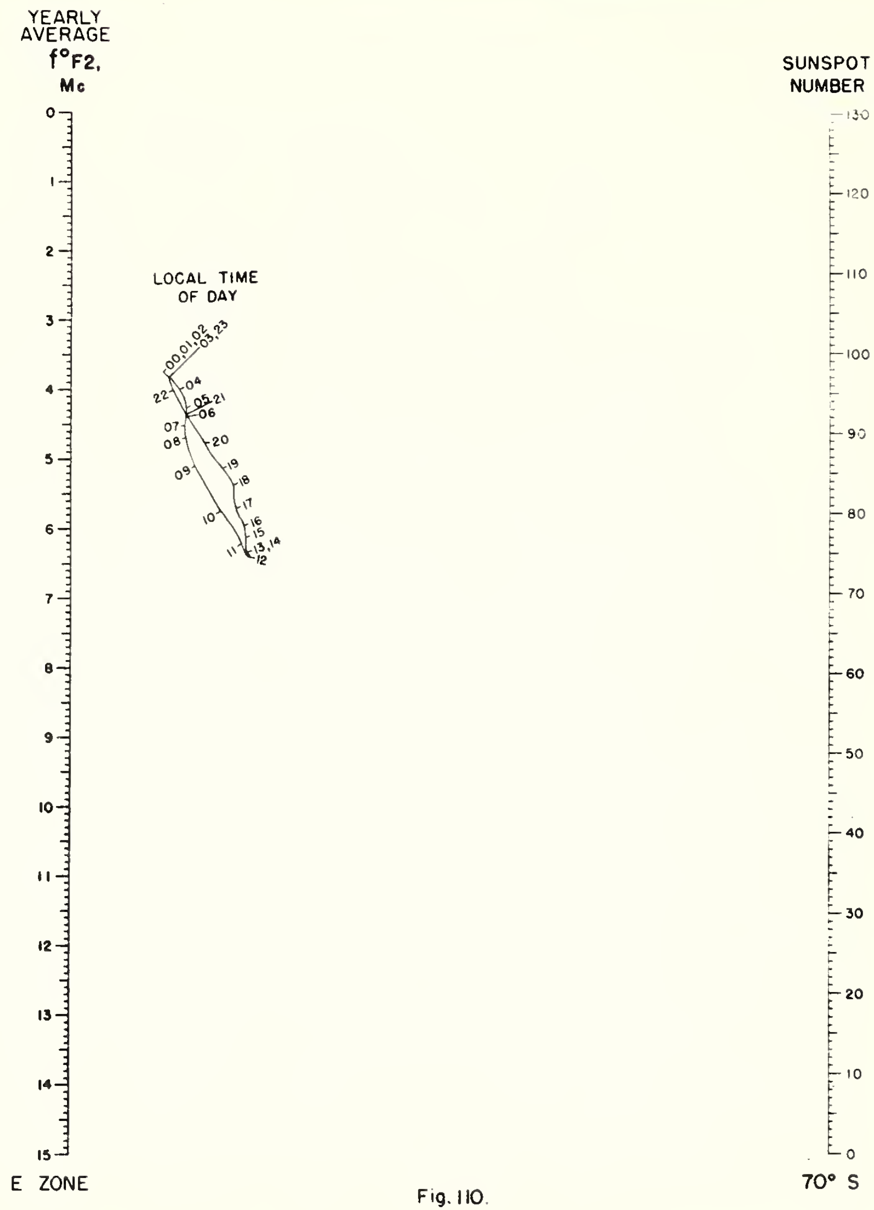


Fig. 110.

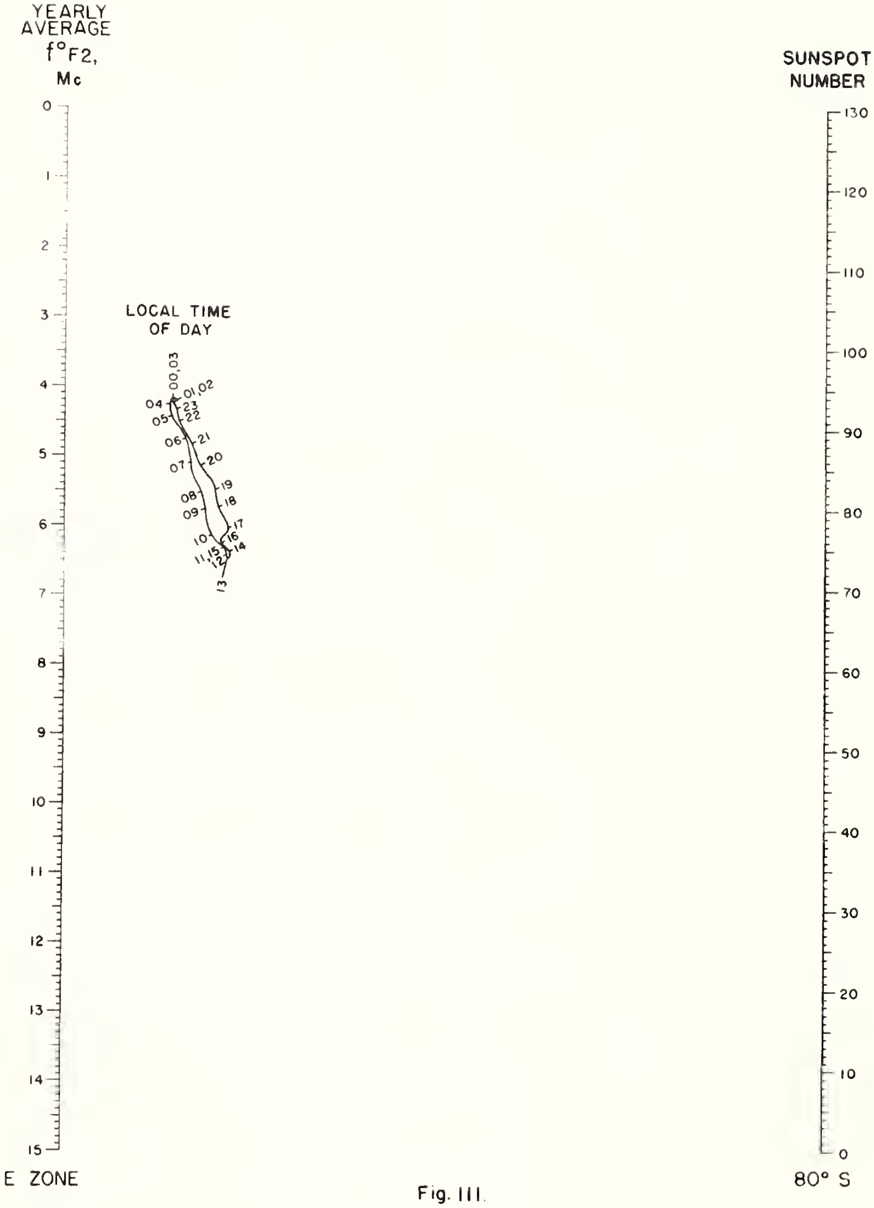

YEARLY AVERAGE
f°F2, Mc
SUNSPOT NUMBER
LOCAL TIME OF DAY
E ZONE
80° S

Fig. 111.

Daily:

Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data from various places.

Radio disturbance warnings.

Semiweekly:

IRPL-J. Radio Propagation Forecast.

Semimonthly:

IRPL-Ja. Semimonthly Frequency Revision Factors for IRPL Basic Radio Propagation Prediction Reports (issued with IRPL-J series from 4 to 7 days in advance).

Monthly:

IRPL-D. Basic Radio Propagation Predictions - Three months in advance. War Dept. TB 11-499-, monthly supplements to TM 11-499; Navy Dept. (DNC-13-1( ), monthly supplements to DNC-13-1.)

IRPL-F. Ionospheric Data.

Bimonthly:

IRPL-G. Correlation of D. F. Errors With Ionospheric Conditions.

Quarterly:

*IRPL-A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.

IRPL-B. Recommended Frequency Bands for Submarines in the Pacific.

*IRPL-H. Frequency Guide for Operating Personnel.

**IRPL-M. Frequency Guide for Merchant Ships.

Special Reports, etc.:

IRPL Radio Propagation Handbook, Part 1. (War Dept. TM 11-499; Navy Dept. DNC-13-1.)

IRPL-C1 through C61. Reports and papers of the International Radio Propagation Conference, 17 April to 5 May 1944.

IRPL-R. Unscheduled reports:

- R1. Maximum Usable Frequency Graph paper.
- R2 and R3. Obsolete.
- R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
- R5. Criteria for Ionospheric Storminess.
- R6. Experimental studies of ionospheric propagation as applied to a navigation system.
- R7. Further studies of ionospheric propagation as applied to a navigation system.
- R8. The Prediction of Usable Frequencies Over a Path of Short or Medium Length, Including the Effects of Es.
- R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
- R10. A method for study of the ionosphere.
- R11. A Nomographic Method for Both Prediction and Observation Correlation of Ionosphere Characteristics.
- R12. Ionospheric variations.
- R13. Ionospheric and Radio Propagation Disturbances, October 1943 through February 1945.
- R14. A Graphical Method for Calculating Ground Reflection Coefficients.
- R15. Predicted Limits for F2-layer Radio Transmission Throughout the Solar Cycle.
- R16. Predicted F2-layer Frequencies Throughout the Solar Cycle, for Summer, Winter, and Equinox Season.
- R17. Japanese Ionospheric Data - 1943.
- R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures - October 1943 through May 1945.
- R19. Nomographic Predictions of F2-layer Frequencies Throughout the Solar Cycle, for June.
- R20. Nomographic Predictions of F2-layer Frequencies Throughout the Solar Cycle, for September.
- R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
- R22. Nomographic Predictions of F2-layer Frequencies Throughout the Solar Cycle, for December.
- R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
- R24. Effect of certain equipment characteristics on the usefulness of a navigation system.
- R25. The Prediction of Solar Activity as a Basis for Predictions of Radio Propagation Phenomena.
- R26. The Ionosphere as a Measure of Solar Activity.
- R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance from Center of Disc.
- R28. Nomographic Predictions of F2-Layer Frequencies Throughout the Solar Cycle for January.

IRPL-T. Reports on Tropospheric Propagation.

- T1. Radar Operation and Weather. (Superseded by JANP 101.)
- T2. Radar coverage and weather. (Superseded by JANP 102.)

*Items bearing this symbol are distributed only by U.S. Navy in NONREGISTERED PUBLICATIONS MEMORANDA (NRPM).

**Distributed only by U.S. Navy.